DOCUMENT RESUME

ED 319 108 EA 021 752

AUTHOR Cross, Christopher T.
TITLE Selected Speeches, Addresses, Remarks, and Testimony of the Assistant Secretary of Education for Educational Research and Improvement, October 23-December 11, 1989.
INSTITUTION Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 89
NOTE 89p.
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Agency Cooperation; Alternative Teacher Certification; *Educational Assessment; Educational Improvement; *Educational Needs; Educational Quality; *Educational Trends; Elementary Secondary Education; Federal Aid; *Futures (of Society); Government Publications; *Government School Relationship; Health Education; Hearings; Higher Education; Mathematics Education; *Research and Development; Research Needs; School Statistics; Science Education; *Substance Abuse; Theory Practice Relationship; Validated Programs
IDENTIFIERS Educational Indicators

ABSTRACT

This document consists of 10 separate speeches, addresses, remarks, or testimony made by the Assistant Secretary of Education for Educational Research and Improvement during the period from October 23 to December 11, 1989. The addresses are arranged chronologically as follows: (1) Testimony, Senate Subcommittee on Governmental Information and Regulation, Governmental Affairs Committee (October 23, 1989); (2) Acceptance Speech (October 25, 1989); (3) ERIC Directors Meeting (October 27, 1989); (4) Testimony, House Committee on Science, Space, and Technology (October 31, 1989); (5) "Building Partnerships for Excellence in Mathematics and Science Education in the 1990s": The First National Conference on the Dwight D. Eisenhower Mathematics and Science Education Improvement Program (November 1-3, 1989); (6) LEAD Directors--National LEADership Network Annual Meeting (November 13, 1989); (7) The Second National Forum on Substance Abuse Issues in Higher Education (November 15-17, 1989); (8) "The Mission of the Special Study Panel on Education Indicators as Viewed by the Office of Educational Resarch and Improvement" (November 16, 1989); (9) Alternate Certification Meeting (December 5, 1989); and (10) The First National Conference on Comprehensive School Health Education (FIE, in FIRST) (December 11, 1989). (MLF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED319108

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

SELECTED SPEECHES, ADDRESSES, REMARKS, AND TESTIMONY

OF CHRISTOPHER T. CROSS

ASSISTANT SECRETARY OF EDUCATION

FOR

EDUCATIONAL RESEARCH AND IMPROVEMENT

OCTOBER 23 - DECEMBER 11, 1989

EA021752

BEST COPY AVAILABLE

Testimony, Senate Subcommitte on Governmental Information and Regulation; Governmental Affairs Committee:

October 23, 1989

Christopher T. Cross, Assistant Secretary for Educational Research and Improvement

I appreciate this invitation to talk with the distinguished members of this Subcommittee about the Nation's needs with regard to education research and statistical information.

Mr. Chairman, your letter conveys concern about the availability and quality of education research and statistical information. That concern is shared by a number of individuals and groups. In the last few years, representatives of education associations, teacher-education institutions, business, colleges, state legislators, and others have called for a greater Federal role in education research and statistical information.

Last month in Charlottesville, as part of their "Jeffersonian compact," President Bush and the governors agreed that the Federal responsibility in education lies with two main tasks: to ensure educational equity for all Americans and to support education research. Specifically, they stated that the Federal role is "to provide research and development for programs that work, [to furnish] good information on the real performance of students, schools, and states, and [to provide] assistance in replicating successful state and local initiatives all across the United States."

The President and the governors clearly see research and statistics as vital to, as the President put it, "make an American education the best in the world." And they agreed that specific performance goals are indispensable to that effort.

Mr. Chairman, I'd like to request that the President's speech and the agreement between the President and the governors, which are attached to my written testimony, be inserted into the record. And I'd like to address some of the specific concerns expressed in your letter.

You asked if we are "identifying the right goals." First, let me say that no specific goals were established in Charlottesville; rather, the President and governors agreed to a process for developing "an ambitious, realistic set of performance goals that reflect the views of those with a stake in the peformance of our education system."

The President and the governors did, however, point to seven areas in which the performance goals will likely be set: increasing children's readiness to begin school; becoming internationally competitive in mathematics, science, and other essential subjects; reducing the dropout rate and improving the academic achievement of all students, particularly those who stand the most to gain from it, disadvantaged students; wiping out adult illiteracy and beefing up the intellectual capital or competence of the workforce; insuring a healthy supply of well qualified teachers; employing up-to-date technology to promote learning; and establishing orderly, safe, drug-free climates for learning.Mr. Chairman, those seven goal areas are indeed the right goal areas. While concentrating our efforts in any one of these goal areas alone would be insufficient to erase what the Secretary has called "the education deficit," taken together these are the vital fronts on which we as a Nation must advance. I believe that a system of specific, measurable, rigorous, and realistic performance goals in these seven areas--if taken to heart by the American people--stands an excellent chance of making American education the best in the world.

The Administration has encouraged goal setting at the state and local levels. Illinois, South Carolina, Connecticut, and other states have established their own goals for schools and students.

The Southern Regional Education Board (SREB) suggested goals for its member states in its report last year, Goals for Education: Challenge 2000. It suggested, for example, that "By the year 2000, four of every five students entering college will be ready to begin college-level work." In addition, it recommended that five "indicators" to gauge progress toward that goal--indicators such as "increasing the percentage of students taking Algebra 1 by grade 10, at least to the percent-

age of graduates who enter postsecondary programs (with special emphasis on getting more minority students to complete algebra)" and "establishing in every institution of higher education appropriate standards for beginning college-level study and assessments to determine if students are prepared to begin this degree-credit study."

Mr. Chairman, I am not advocating these particular goals. My point here is that education performance goals are being set at levels other than the National level in some parts of the nation. But Mr. Chairman, imagine the impact if every state would emulate what happened in Charlottesville last month. Wouldn't it be nice if every state would call together the stakeholders in its education system for the purpose of setting rigorous education performance goals for their state, within the larger national framework of goals? Wouldn't it be nice if every community would do the same, within the context of its state's goals? Years of research on school effectiveness and related education issues make this clear: schools and students who achieve high levels generally know what's expected of them.

Whatever specific goals are agreed to, we can be sure of several things. Reaching them will take a sustained effort. We can turn this Nation's education performance around, but not if we expect to do it within a year or two. We must commit to the long haul.

And it will take a concerted, all-out effort. I want to emphasize the word "effort," Mr. Chairman, because a lack of it in our schools and homes is holding us back. International assessments reveal that our students generally believe they are quite good in science and math when, in fact, they're less accomplished in these critical subjects than are youngsters in other countries--youngsters with whom they'll have to compete in the future.

Mr. Chairman, it will take more parents becoming full partners in the education of their children; offering families a choice among schools can encourage parent interest and involvement in their children's schooling and learning from the outset. And it will require that we teach deep

understanding of fundamental knowledge, helping youngsters understand not only when the Civil War occurred, for instance, but why.

It will require giving schools the leeway and freedom to figure out how to teach such things to all their students--and holding them accountable for the results. If schools are to do this, and to do it better each year, they must receive accurate, timely, and useful feedback about their students' progress, as well as top-notch information from research, state-of-the-art practice, and statistics.

This brings me to two of the questions in your letter, Mr. Chairman. You asked about the "availability and quality of information needed for developing and assessing national education goals" and about the "information systems [that] will be needed to set national standards and to assess progress."

These questions pertain to the statistics side of OERI, the National Center for Education Statistics (NCES). In recent years NCES has strengthened the nation's supply of accurate, reliable, timely data. Some three years ago, NCES initiated efforts to improve its operations and to close gaps in its data. Today, NCES data are cited regularly in newspapers and by decision-makers across the country.

But we cannot be satisfied; there is still room and need for improvement in NCES--particularly in light of what we expect to be an increased demand for data relative to the upcoming seven performance goal areas. Currently, NCES is largely responsible for the oldest and one of the most central roles for the Federal government in education, that of reporting on the condition and progress of education across the states. Although nothing has been formally agreed to, it seems likely and quite appropriate that NCES may be asked to shoulder a sizeable portion of the responsibility for gauging the nation's progress in these goal areas.

We have skeletal frameworks for monitoring progress in several areas. For instance, last

month NCES released its first annual report on the nation's dropout rate, Dropout Rates in the United States: 1988. The report establishes three measures of "dropouts" and lays the groundwork for construction of a comprehensive system to monitor all three dimensions of the phenomenon over time.

A second example pertains to international comparisons of learning and schools. Under the auspices of the Organization for Economic Cooperation and Development (OECD), NCES is involved in an international effort to develop "indicators" that will permit international comparisons of various features of schools and students, including student outcomes and student attitudes. Also, NCES is preparing for two major international studies. One will compare the reading performance of fourth graders and ninth graders in 40 countries. The other will compare the mathematics, science, and geography achievement of 9-year-olds and 13-year-olds in 20 nations, including the Soviet Union and China. We hope to see the results of both international studies by the end of 1992.

The third and final example has to do with measuring the performance of our students within the U.S. Again, we have the beginnings of a workable system. Last year, Congress mandated that a panel be established for the sole purpose of developing valid, accurate indicators by which the Nation's education progress could be measured. That panel of distinguished individuals will meet for the first time in November 1989.

Of course, the outlines of a system for gauging student learning across the U.S. are available in the National Assessment of Educational Progress (NAEP). As the only nationally representative sample of what our students know and can do at certain ages and grade levels, NAEP is likely to be one of the important "building blocks" for creating a system to gauge the Nation's progress toward our goals for student learning.

As you know, we are in the process of expanding and strengthening NAEP. The 1990 NAEP will allow us to compare U.S. 8th graders' performance in mathematics state-by-state; the 1992

NAEP will permit us to compare U.S. 4th graders' reading performance state-by-state. I believe these new data from the expanded NAEP will afford considerable insight into the state of learning across the U.S.

But there is a problem with relying on NAEP as the sole mechanism for measuring performance against goals--not all states are participating in the state-by-state comparisons; participation is, by law, optional.

Mr. Chairman, your question about whether we "have the information and research needed to develop successful strategies" to advance as a Nation in the seven goal areas brings us to the R&D side of OERI. Recent years have seen some improvements on this side of the agency--in the Office of Research, Programs for the Improvement of Practice, and Information Services. But I envision more.

One of my goals for these programs--indeed, for all of OERI--is to do a better job at putting research into practice. This means more than simply improving dissemination, though we must do that, too. It means that our work in toto, from the issues we address to the manner of presenting research results and information, must be driven by the needs of the people in the field. We are going to make education information easier for teachers, principals, parents, policymakers, and other audiences to use, for these are the people who must use such information if it is to make a difference in student learning.

Another goal of mine is to increase communication and collaboration within OERI and among the various components OERI supports and monitors. As you may know, OERI consists of six program areas. I talked about the activities of one, NCES, a moment ago. Let me mention the others and just a small portion of what they do. The Office of Research, among other things, oversees the work of some 20-plus research centers; Programs for the Improvement of Practice administers 10 regional laboratories; Information Services works with 16 information clearinghouses;

Library Programs administers nine programs that improve public and academic library services across the country; the Fund for the Improvement and Reform of Schools and Teaching administers grants to support innovative reforms in pre-school through 12th grade education and teaching.

As the Subcommittee knows, OERI's components are numerous, varied, and scattered across the country. One of my goals is to encourage and enable these various components to operate more efficiently, more effectively, and more productively as a system, as a team. Teamwork will be a priority across and throughout the agency. And I intend for our "team" to expand beyond OERI to the Department of Education, and beyond the Department to include other Federal agencies and non-Federal organizations, both inside and outside the Beltway. That has to happen if education information is to illuminate and guide us to the level of school and student performance Americans want.

Mr. Chairman, I read your letter as an indication that you would be interested in what the Department and OERI have done, are doing, and plan to do to advance the Nation toward the seven goal areas set by the President and the governors. I would like to request that the hearing record be held open for me to submit a more detailed description of what OERI is doing in each of the seven goal areas.

I would like to thank you and the Subcommittee for inviting me here today. I'd be happy to answer questions at this time.

Attachment to the Oral Testimony Before the Subcommittee on Government Information and Regulation
October 23, 1989
Assistant Secretary for Educational Research and Improvement Christopher T. Cross

Mr. Chairman, I promised on October 23, 1989, to submit a more detailed description of what the Department is doing in the seven goal areas that evolved from President Bush and the governors' discussions in Charlottesville. This is that description, which, while certainly not exhaustive, is comprehensive. The seven goal areas are addressed one at a time, with discussion of each divided into two general categories: efforts aimed to stimulate, guide, hasten, or support the Nation's progress in that particular goal area, and activities that may prove useful as we seek measures and mechanisms for gauging the Nation's progress in that goal area. The first category has to do with providing assistance to states and local school districts, whether it be in the form of grants or in the form of information derived from research and practice; the second has to do mainly with providing data and information from assessment, evaluation, and statistics.

Mr. Chairman, the first performance goal area to which the President and the governors agreed has to do with "the readiness of children to start school." The Fund for the Improvement and Reform of Schools and Teaching (FIRST), one of OERI's six program offices, administers three grant programs designed to extend appropriate and important learning to preschool-age children who might otherwise miss such opportunities--the Family-School Partnership Program, the Schools and Teachers program, and the Innovation in Education Program. In Colorado, for example, FIRST is about to fund and monitor a statewide project involving some 100 newly mandated preschool programs for four- and five-year-old children who need help with language skills and are from econmomically disadvantaged families.

Another of OERI's six programs, Programs for the Improvement of Practice (PIP), administers 9 regional laboratories in 10 regions, seven of which currently have or have completed (since 1986) an early childhood project of some kind. Also located in PIP is the National Diffusion Network (NDN), which, as you know, shares successful education programs among public and private schools, colleges, and other institutions. In 1987-88, for instance, NDN supported 38 projects designed to boost preschool children's development in the areas of literacy, mathematics, and motor skills. PIP also sponsors and convenes regularly a group of 31 superintendents of large city and urban school districts, known as the Urban Superintendents' Network. The network is producing, among other things, a report on what schools and community organizations can do together to for at-risk children in the early years and early grades.

That report--and thousands of "lessons learned" from practice

and from research--are archived and available from one of the 16 Educational Resources Information Center (ERIC) clearinghouses administered by OERI's Information Services, the Clearinghouse on Elementary and Early Childhood Education at the University of Illinois. (One of the reports available from the clearinghouse, for instance, is the OERI's Center for Policy Research in Education's report on state initiatives and policies in early childhood education.) In addition to responding to requests for information, the Illinois clearinghouse publishes a newsletter and compiles concise

reports on early childhood issues--issues such as the "quality versus affordability" of care and children's readiness for kindergarten.

Another of OERI's six programs, Library Programs (LP), supports more than 150 library-based programs for preschool children. Typical of these programs are the picture-book, reading readiness, and story hour programs in Denver and Brooklyn, which have reached thousands of families in these two cities.

OERI hopes to support more investigation of early childhood issues in the future. One of OERI's six programs, the Office of Research (OR) is planning a competition this fiscal year that would lead to funding for 12 national research centers, including one newly proposed center that would study, among other things, how young children learn and ways that parents can better help them learn. This center--the Center for Research on Families, Communities, and Young Children's Learning--is one of three proposed research centers that would tackle issues not currently being addressed by any of the existing OERI centers.

OR has proposed that all 12 of the national research centers address certain "cross-cutting themes." One of those themes, for which all 12 would be responsible, is "student transitions--exploring the educational significance of the maturational changes children...undergo as they progress...from home to school" (Federal Register, Vol. 54, No. 175, Tuesday, September 12, 1989, p. 37776).

As the Subcommittee knows, interest in day care and early childhood education has grown in recent years. What is the current state of early childhood care and education in the U.S.? One of OERI's six programs, the National Center for Education Statistics (NCES), is piloting a household survey this fall (1989) that will establish a data-set that will help answer that question and allow us to track changes in various features of day care and early childhood education services over time. NCES has also commissioned a series of papers on data needs regarding early childhood, papers that will inform the possibility of initiating a longitudinal survey to better understand school readiness and its subsequent consequences for various subpopulations. Mr. Chairman, I would like to mention that the Department's Office of Planning, Budget, and Evaluation (OPBE) is also doing important work in this area.

Finally Mr. Chairman, I'm hopeful about advances in the general state of knowledge about early childhood learning in recent years. States such as Missouri, Minnesota, Arkansas, and others have demonstrated through parent and family training programs that enough is known for action to improve youngsters' readiness for school.

A second goal area agreed to in Charlottesville is closely related to the first; it has to do with "the reduction of the dropout rate and the improvement of academic performance, especially among at-risk students." Much--if not all--of what I mentioned with regard to early childhood education is aimed to improve the Nation's performance in this area as well.

Before looking at OERI, let me remind the Subcommittee that the lion's share of Department funding is spent to improve the learning of disadvantaged students. Chapter 1 alone, which is administered out of the Office of Elementary and Secondary Education, will disburse some $4.7 million this fiscal year, most of which will go to help low-performing students in reading and

mathematics. I should mention also that the Department awards competitive grants to local school districts for dropout-prevention efforts. A national study of this program, the School Dropout Demonstration Assistance Program, will indentify effective district efforts.

In OERI, FIRST's Family-School Partnership Program this year is supporting 16 school-based partnership programs that would help increase family involvement--and students' engagement and success--in learning.

Improving education for at-risk students is a major concern of PIP's regional laboratories. It is estimated that at least 40 percent of the labs' collective resources go to addressing the needs of students who are at risk of failing or dropping out of school. All nine labs have been involved in analyzing policies, identifying promising practices, sponsoring seminars or workshops, providing training and information, or assisting states or schools in some other way to keep at-risk youngsters in school and boost their academic performance.

With assistance from PIP two years ago, the Urban Superintendents' Network laid out six practical strategies for lowering large-city school district dropout rates in their report, Dealing with Dropouts: The Urban Superintendents' Call to Action. The booklet was so popular that GPO reprinted it. We plan to publish soon their elaboration of two of those strategies--early intervention (preschool and early childhood programs, which I mentioned in discussing the first goal area) and collaborative efforts (among parents, schools, communities, business, and the media). I want to mention again that PIP administers the National Diffusion Network (NDN), which supported 16 dropout-prevention programs last year. In addition, the PIP-administered School Recognition Program scrutinizes the learning environment of applying schools, including their programs for at-risk youngsters.

Last year, OR launched a five-year research center at Johns Hopkins for the purpose of finding ways to improve the education of the large number of children in our society who have not had appropriate educational experiences in their families, in their communities, or in their schools--or, as is often the case, in all three of these areas. To augment the efforts of that center, known as the Center for Research on the Effective Schooling of Disadvantaged Students, we hope to compete this year and begin next year a new center, the Center for Research on Education in the Inner Cities. It would investigate ways to improve teaching and learning for the many minority and disadvantaged youngsters who live in inner cities.

All four of the themes that would cut across the 12 national research centers being proposed by OR are linked to "the reduction of the dropout rate and the improvement of academic performance, especially among at-risk students." Those themes have to do with: student engagement and persistence in learning; cultural and linguistic diversity and its impact on the classroom and students; student transitions from home to school, from elementary to middle school, and from middle school to high school, from school to work, and from job to job; and the mismatch between the organization and the curriculum of the middle grades and high schools. Mr. Chairman, I would point to the general reception of the Carnegie Corporation of New York's recent report, Turning Points, as evidence that we must attend much more closely to the middle grades and the transition to high school. These years are a critical stage in the development of youngsters--and critical opportunities for keeping youngsters in school and boosting their academic competencies.

All of these reports and information are available from any of the 16 IS-supported ERIC clearinghouses, as well as from 3,000 other ERIC "access points" at libraries, universities, and other institutions. I mentioned the Clearinghouse on Elementary and Early Childhood Education under the first goal area. The Clearinghouse on Urban Education and the Clearinghouse on Rural Education and Small Schools also work to acquire, synthesize, and disseminate information about effective dropout programs and strategies.

As for gauging the Nation's progress in this goal area, NCES is working with the states (through its State-Federal Cooperative Program) to develop a uniform definition of "dropouts." That definition will form the basis for gathering comparable data on dropouts among school districts and states across the U.S.--data that are, under current conditions, unavailable because of a lack of agreement as to what constitutes a "dropout."

As the Subcommittee knows, last year Congress charged NCES with the responsibility of assembling a statistical picture of the dropout phenomenon in the U.S. Last month, NCES released Dropout Rates in the United States: 1988, its first annual report, which examines three statististical dimensions of the problem: how many high school students drop out each year, how many sophomores fail to complete high school on time, and how many 16- to 24-year-olds lack a high school diploma or equivalency certificate (and are not in school). The report also lays the groundwork for construction of the nation's first comprehensive system for monitoring national dropout rates over time; the system--which may draw on as many as four different data sources (compared to the two that this year's dropout report used)--could be operational as early as autumn of 1992.

A third goal area, which is related to the first two, has to do with "the establishment of safe, disciplined, and drug-free schools." Again, much of what I've already said would help to advance these general goals.

I would like to remind the Subcommittee that OERI was involved with the Office of Drug Abuse Prevention Oversight Staff in the production of What Works: Schools Without Drugs, the second edition of which was issued this year. This guide tells what can be done--by parents, students, schools, and entire communities--to keep drugs out of schools and keep youngsters drug free. PIP and the Office work closely in administering the Department's Drug-Free School Recognition Program (which has to date recognized 77 schools nationally), the networks of drug-free schools and colleges, and other drug-prevention activities, including the publication of Profiles of Successful Drug Prevention Programs (which highlights winners of our Drug-Free School Recognition Program. In addition, PIP is running a grants competition that will lead to various instructional materials, from curricula to coloring books, designed to instill in pre-school children the value of staying away from drugs. Mr. Chairman, I would add that the Department is coordinating also with the Office of National Drug Control Policy to maximize the impact of resources that go to drug prevention and education.

Mr. Chairman, keeping drugs out of schools is a necessary but insufficient condition for creating and maintaining order and safety in schools. A safe and orderly climate is one of the characteristics of effective schools--the others include strong leadership, parent support, an emphasis on academics, clear goals, high expectations, monitoring student achievement. All of the nine regional labs that PIP oversees have been involved in helping schools in adopt and adapt such "effective schools" characteristics. GAO reported last month in Effective Schools Programs that

41 percent of the Nation's 16,000 school districts had operated effective schools programs in 1987-88. Mr. Chairman, according to that report, more than one out of three of those districts (36 percent) received assistance from one of OERI's nine regional labs.

The National Center on Effective Secondary Schools, which OR monitors, has also labored to help secondary schools become more effective, particularly in serving disadvantaged students. The Center sponsors conferences, issues newsletters and bulletins, and produces syntheses of research, many of which are intended to increase students' engagement in learning. The proposed new research center on Education in the Inner Cities, which I mentioned earlier, would examine, among other things, the ethos, or climate, in inner city schools and classrooms and how it and other features of inner city schooling are affected by activities of urban youngsters outside of school. Another proposed research center, the Center for Research on Education Policies and Student Learning, would examine policy issues such as parent choice and high expectations, paying particular attention to their impact on school performance and student learning.

As for verifying progress toward "the establishment of safe, disciplined, and drug-free schools," NCES collects and furnishes data on students, teachers, and principals' perceptions of school climate and workplace conditions. Also, NAEP surveys principals about the extent of substance abuse and various discipline problems in their schools.

The fourth goal area involves "the performance of students on international achievement tests, especially in math and science." As the Subcommittee knows, the most recent international study showed that out of five countries, including four Canadian provinces, our 13-year-olds scored near the bottom in science and dead last in mathematics.

Mr. Chairman, that has got to change, and the Department is working to see that it does. The Department's largest elementary-secondary program, Chapter 1, reaches one of nine elementary and secondary students in the Nation. Nearly half of those students receive mathematics instruction. Chapter 1 is administered by the Office of Elementary and Secondary Education (OESE), which also administers Dwight D. Eisenhower Mathematics and Science State Programs. Our FIRST office, which administers Dwight D. Eisenhower Mathematics and Science National Programs, is working closely with OESE. Together, FIRST and OESE are convening, for the first time ever, science-education leaders from all 50 states for the purpose of sharing success stories and plans regarding some of the most innovative curricula and teacher-training projects in the Nation.

In OERI, we are doing much to improve teaching and learning in science and mathematics. Many of the nine regional labs monitored by PIP are involved in efforts to improve instruction in mathematics and science. For instance, labs have sponsored workshops on "Family Math" and hands-on mathematics programs held seminars for state and local education agency staff on new approaches to mathematics, introduced in six states enrichment programs in K-5 mathematics instruction, conducted evaluations of math programs, trained science teachers (in collaboration with NSF), worked with PBS to hold teleconferences (which have included segments titled "Teaching Science for Conceptual Understanding" and "Making Sense of Mathematics"), produced publications (for instance, the forthcoming "Science Education in Rural America"), designed courses for students not headed for college, evaluated math and science computer software, and other activities.

Also in PIP, the National Diffusion Network (NDN) makes 27 mathematics and 15 science

programs available to schools. NDN works closely with the National Science Foundation (NSF) in both identifying and disseminating these exemplary programs. NDN is currently disseminating five programs that were developed with NSF funds. NSF also supported a nationwide search for math and science programs and worked with NDN staff in preparing these programs for the Program Effectiveness Panel. NDN's Science Education Programs That Work has been distributed to more than 5,000 schools and groups, and is in its second printing. I want to mention also that one-third of the schools making the finals in the 1987-88 Elementary School Recognition Program, which PIP administers, had exemplary science or mathematics programs. Two forthcoming PIP publications have to do with science: one tells policymakers about state and local policies proven effective in promoting student achievement in science; the other suggests how parents can stir up youngsters' interest in science and what parents can do to encourage science-instruction improvements in their child's elementary school.

At least 10 of the OR-administered national research centers are involved with some aspect of mathematics or science education. Research projects underway at the centers include identifying the mathematical knowledge that youngsters possess intuitively and bring to the classroom, pairing students and giving them memory/organizational tools to increase their performance in solving arithmetic story problems, identifying inadequacies in teacher knowledge (which limits teachers' abilities to show students "the connections" between different "pieces" of knowledge), analyzing biology textbooks, investigating strategies and formats for measuring higher-order thinking in mathematics, devising techniques for examining the "instructional sensitivity" of math-test questions, developing procedures for assessing classroom coverage of mathematics content and for assessing the impact of tests on secondary mathematics classrooms, examining the writing students do in science classes, studying the operation and role of mathematics and science departments in secondary schools, analyzing the impact of policies on what is taught and learned in science and mathematics, and other efforts.

Let me mention several centers in particular. The Center for the Learning and Teaching of Mathematics (at Madison, Wisconsin) is working to identify fundamental knowledge that should be taught to all students, to organize and sequence that knowledge, to bridge mathematics to other subjects, and to narrow gaps between the prescribed curriculum (that is, what students are supposed to learn) and the achieved curriculum (what students actually learn). The National Center for Improving Science Education (at Andover, Massachusetts) is examining what tests currently measure and what they ought to measure, the content of science curricula and instruction, and the knowledge and skills of teachers--how teacher preparation, staff development opportunities, and school and school district structures support (or do not support) the teaching of science.

For the upcoming competition and awarding of research centers, OR has proposed a number of centers whose work would address directly or indirectly mathematics and science, including the centers for the study of teaching and learning in science and in mathematics, the center on students assessment and evaluation, and the center on student learning.

Two field-initiated studies supported by OR in the past few years pertain to science and mathematics: a study of black students' commitment to--and achievement in--mathematics and science, and a study of teacher-developed tests for high school science and how those tests might be improved.

All of these findings, of course, are available available in the IS-administered ERIC data base. Like other ERIC clearinghouses, the Clearinghouse on Science, Mathematics and Environmental Education (at Ohio State University) works with national associations and government agencies, makes presentations, and produces a number of publications, including bulletins, digests, summaries, and syntheses of research. The Clearinghouse estimates that it responds to an average of 2,500 requests for information per month.

Of course, the value of all these efforts must be measured in terms of the difference they make on student learning. The expanded National Assessment of Educational Progress (NAEP) will improve our understanding of what American students know and can do--and our capability to monitor changes in their knowledge and skills over time. NCES is also enlarging its efforts to compare our students' learning to that of students in other countries. As I mentioned earlier, NCES is involved in developing international "indicators" to examine various features of schools and students across nations, including school context, school finance, student outcomes, and student attitudes. Also, NCES is gearing up for two major international studies--one that will compare the reading performance of fourth graders and ninth graders in 40 countries and a second that will compare the mathematics, science, and geography achievement of 9-year-olds and 13-year-olds in 20 nations, including for the first time the Soviet Union and China. Results from both international studies are expected by the end of 1992.

I would add that NCES, with funding from NSF, is supplementing the National Education Longitudinal Study of 1988 (NELS:88) to provide data on the nature and quality of mathematics and science courses in the U.S.

I would like to mention also that of the initiatives that President Bush proposed last year to Congress in the Educational Excellence Act of 1989, several would influence mathematics or science teaching and learning directly or indirectly. The National Science Scholars program would provide more than 500 grants for undergraduates who excel in mathematics and science. Mr. Chairman, I believe that the national visibility of these awards would boost the prestige of science study--and the proportion of students who endeavor to excel in the sciences. The Merit Schools program would offer schools serving disadvantaged youngsters a tangible, financial incentive to improve school-wide achievement in mathematics.

The fifth goal area has to do with "the functional literacy of adult Americans."

As the Subcommittee knows, the bulk of Federal efforts aimed to address this issue are undertaken outside OERI. The Department's Office of Vocational and Adult Education, for instance, supports hundreds of state and local programs to improve the reading and literacy levels of adults through various programs, including the National Workplace Literacy Parternship Program, the Adult Education for the Homeless Program, the National English Literacy Demonstration Program for adults who have limited English proficiency, formula grants to states under the Adult Education Act, and Even Start, a family reading program that improves parents' reading competence while teaching them how to become partners in the education of their children.

Among the efforts in OERI that help increase the literacy of adults is one in Library Programs (LP), the Library Literacy Program (LSCA Title VI), which has annually supported more than 200 library-based adult literacy programs across the country in recent years. Half the libraries involved

in 1986 said they had strong ties with local adult basic education programs. mong the several litercy research studies funded by LP is a comprehensive survey report on libraries and literacy education (1988) and a case study of exemplary literacy programs (1987).

OR has supported a handful of adult-literacy and workplace-literacy studies. Some of the work of the Center for the Study of Learning (at the University of Pittsburgh), while aimed not at the literacy of adults alone, has advanced our understanding of instructional strategies for increasing reading performance regardless of age. OR has proposed a new national research center on Adult Literacy that would build on our current knowledge regarding literacy, adult literacy, and ways to promote it. The Center for Research on Adult Literacy would identify model adult-literacy programs having high enrollments and high rates of persistence. The center would assess the effectiveness of various programs and of basic-skills training programs that use new technologies.

PIP has developed three publications that explain recommendations of the Commission on Reading, set forth in the 1984 report Becoming a Nation of Readers, to parents, teachers, and principals.

Several years ago, NCES conducted a national study of the literacy of young adult Americans (21- to 25-years-old). The study found that only about 25 percent of white young adults, about 10 percent of Hispanics, and less than 3 percent of black young adults were able to do things such as synthesize the main argument of a lengthy newspaper article, use a bus schedule to select the appropriate bus, and determine how much change they should receive when paying for a meal in a restaurant. This month NCES awarded a contract for a four-year nationwide study of literacy among American adults aged 16- to 64-years-old. The study will furnish information on American adults' capacity to function in various situations that call for illiteracy across the country.

Closely related to functional literacy of adults is the sixth goal area, "the level of training necessary to guarantee a competitive workforce."

Again, various pertinent Federal efforts are conducted outside the Department and OERI. OERI staff have worked with the Department of Labor in reviewing reports and developing a plan for solving America's crisis in the workforce. That plan consists of 44 recommendations described in a report released last month on Labor Day, Investing in People: A Strategy to Address America's Workforce Crisis (under the auspices of the Commission on Workforce Quality and Labor Market Efficiency). Last year, the Education Department worked with the Commerce and Labor Departments to jointly produce two publications--one that outlines procedures that employers can use to identify and solve literacy problems in the workplace (The Bottom Line, produced with Department of Labor) and one that presents the results of surveying business executives' views on the reading, writing, mathematics, and other academic competencies needed in the American workplace today and how well the American workforce is performing them (Building a Better Workforce, produced with both Departments).

OR currently supports a National Center on Education and Employment (Teachers College, Columbia University), which has examined various issues relative to education and work, including who should teach what work-related skills to whom, where such teaching should take place, and so on. The center has documented the trends toward--and demand for--consumer-oriented production and services, cross-occupational skills for all students, higher order thinking in the workplace,

teamwork on the job, and others. OR has proposed a national research center that would extend the work of the center. Tentatively referred to as the center on Educational Quality of the Workforce, it would identify the full range of threshold competencies workers need, factors that account for difference in competencies required across different jobs and industries, long-term effects of academic achievement on labor market outcomes, and career consequences of college degrees.

The articles, reports, and other key publications of the research centers, as well as thousands of other published findings about education and employment are available through the IS-supported ERIC Clearinghouse on Adult, Career, and Vocational Education. Also, the Clearinghouse on Reading and Communication Skills, which focuses on functional literacy at all ages, and the recently established Adjunct ERIC Clearinghouse on Literacy Programs for individuals having limited English proficiency house information related to workplace training and adult literacy.

The seventh goal area has to do with "the supply of qualified teachers and up-to-date technology." First, technology. Through the College Library Technology and Cooperation Grants Program (HEA Title IID), LP supports computer-based library networks in colleges and universities. The program also supports research projects for the development of new and innovative technologies to meet the education and information needs of the higher education community. Approximately 150 colleges and universities are currently involved in these programs.

FIRST's Fund for Innovation in Education (FIE) provides grants for training teachers and administrators to use technology in classroom instruction, particularly in mathematics and science.

Several regional labs administered by PIP have issued policy briefs and other publications on technology and education. Also in 1988, Star Schools, another PIP program, funded four regional partnerships for developing teaching networks that use live interactive instruction via satellite, individualized computer-assisted instruction, and videotaped instruction. Students in more than 1000 schools in 39 states receive such courses in mathematics, science, and foreign languages--courses that, otherwise, would be unavailable.

OR-administered research centers have examined and improved the capacity of technology to extend and enhance learning. One center, for instance, used computer-based "micro-worlds" to help students learn about refraction of light; about microeconomics; and about voltage, current, and resistance in direct current circuits. The Educational Technology Center (at Harvard) explored how computers can show visual representations of mathematical concepts (and thus ease learning such concepts), how computers can simulate scientific concepts (to help students distinguish between weight and density or heat and temperature, for instance). OR's Center for Technology in Education (at Bank Street College of Education in New York City) is studying the design and delivery systems of instructional strategies that employ advanced technologies, the goal being to identify optimal ways of integrating technology into schools under a variety of conditions.

The current center on postsecondary teaching and learning (at Michigan) investigates various uses for educational technology. The proposed new center for research on Adult Literacy would examine the effectiveness of computer-assisted instruction and other technologies in helping underliterate and illiterate adults. The proposed Writing and Literacy Center, the Math Teaching and Learning Center, and the Science Teaching and Learning Center would each extend and refine the uses of technology to improve learning in their respective subject areas.

The results of this research as well as past findings and literature related to technology and education are available through IS's ERIC Clearinghouse on Information Resources, which maintains a database, answers requests, makes presentations, and generally provides information on educational technology and information science at all levels.

With regard to "the supply of qualified teachers," OERI is engaged in a number of activities. Many of the activities in PIP and the services provided by the regional labs are aimed at upgrading the performance of teachers currently in the classroom. The PIP-administered regional labs have produced a number of policy papers and reports on the supply of qualified teachers in their respective regions.

The National Center for Research on Teacher Education (at Michigan State University) focuses on, among other things, the impact of various kinds of teacher training on teachers' performance in teaching of mathematics and writing. The activities of a number of other centers contribute to what is known about effective teaching, including the centers on Elementary and Middle Schools, Learning and Teaching of Elementary Subjects, Learning and Teaching of Mathematics, Learning and Teaching of Literature, Improvement of Science Education, Study of Writing, Study of Learning, and others.

Many of the research centers proposed for the upcoming competition would build on what is known about effective teaching in their respective areas, including the centers on Student LEarning, Writing and Literacy, Mathematics Teaching and Learning, Science Teaching and Learning, Education in the Inner Cities, and others. The center on Learning to Teach would look at how teachers acquire their expertise, how to teach students from diverse populations, the effects of innovative pedagogies (such as case studies and computers) and nontraditional contexts (alternate routes to licensure) on teachers' learning.

A few years ago, OR produced a state-by-state analysis of teacher testing policies in What's Happening in Teacher Testing. That publication and a wealth of other information and findings from the research centers, teacher-training institutions, and elsewhere is available from IS's ERIC Clearinghouse on Teacher Education.

NCES will continue to track changes in teacher supply and demand, as well as teacher characteristics and qualifications, through its Schools and Staffing Survey and its surveys of Recent College Graduates.

As the Subcommittee knows, President Bush has proposed a program to award outstanding teachers. Presidential Awards for Excellent Teachers is based on the President's belief, a belief which I share, that one way to encourage more outstanding teaching is to reward it.

The President also proposed in April an initiative that could help many states augment their supply of well-qualified teachers and principals. The Alternative Teacher and Principal Certification Program would provide funds to states to create alternate routes into the classroom for talented individuals who, though lacking an education degree, may nevertheless be well qualified to teach or provide leadership. There is evidence in Georgia, Houston, New Jersey and elsewhere that these alternate certification programs could increase the nation's supply of minority teachers as well as

teachers in critical shortage disciplines such as science and mathematics. OERI is planning a conference on alternate certification to inform interested but as yet uninvolved groups and individuals, and to help shape a research agenda.

Mr. Chairman, these are the highlights, certainly not everything that OERI is doing relative to the seven goal areas President Bush and the governors identified in Charlottesville.

In their communique, the President and the governors made it clear that information from education statistics, research, and practice will play a critical role in helping the Nation reach the performance targets to be unveiled in February. Mr. Chairman, my mission to enable and encourage the Federal education research-and-development system to live up to that expectation. That will require more and better information than ever from education statistics, research, and practice--information that builds on what we already know. And it will require that we do a better job of putting such information into practice.

Mr. Chairman, the Federal education research-and-development system has got to function better as a system. That is why I am stressing, urging, advocating, and facilitating teamwork throughout OERI. Our OERI "team," however, will include more than OERI staff and more than our regional labs, resource centers, and other OERI components. We are expanding our team to include other offices throughout the Department, other agencies thoughout the Federal government, organizations outside the government and beyond the Beltway.

It is this kind of "expanded team" that is necessary if education information is to illuminate education policies and practices nationwide. It is this kind of team that is needed if schools and communities are to be supplied with accurate, reliable, up-to-date, and easy-to-use information that will illuminate the various routes to education improvements Americans practically everywhere are seeking. Mr. Chairman, whatever goals are issued in February, I am convinced that in order to reach them, we must improve student learning everywhere--in the classroom, in the library, on the job, at home. That can be done--I am convinced that it will be done--if good information on how to do it is supplied to the people who must do it--the people whose decisions each day affect the attitudes, aspirations, and future of America's youngsters--parents, teachers, principals, policymakers, and students themselves.

Thank you.

Acceptance Speech

Assistant Secretary Chris Cross

October 25, 1989

Thank you all for coming here today. I want to thank my wife Dee Dee, my step son Charley, my two daughters Allyson and Dana, as well as OERI staff...Emerson, Milt, Nelson, Sharon, Anne, Richard, and so many others...for your support. It is also wonderful to se so many people here from my 20 years in Washington in education.

And I want to thank one person in particular--someone whose steady hand and quiet persistence have kept this agency on course these past six months. On behalf of OERI and the Department of Education, thank you, Bruno. You have done a magnificent job.

I'm extremely enthusiastic about this job, about this agency, about the opportunity that lies ahead of us. We have in the White House a President who is committed to education.

In Charlottesville last month, President Bush set an overarching goal. "We are here," he told the governors, "to...make an American education the best in the world."

We are not here today to dwell on what happened in Charlottesville. The President and the governors agreed on a number of critical ingredients for improving American education. And many of those ingredients must be supplied (at least in part) by us in OERI.

They agreed, for instance, "to report annually on progress in achieving...[the nation's education] goals." That augurs a new and considerably higher visibility for the National Assessment of Educational Progress, as well as for other appropriate statistical and non-statistical measures of

progress.

They agreed on the need for national education goals, accountability for results, restructured schools, and a stronger partnership between state and Federal governments. Each of these, of course, bears upon our work.

The summit underscored the new sense of importance and urgency attached to education research and statistics. The President and the governors agreed that the Federal government has two overriding responsibilities in education: to insure educational equity for all Americans and to support education research. Specifically, they stated that the Federal role is "to provide research and development for programs that work, [to furnish] good information on the real performance of students, schools, and states, and [to provide] assistance in replicating successful state and local initiatives all across the United States." For that to happen, of course, the research-and-statistics side must be coupled with the information-dissemination-and-innovation side.

Clearly, President Bush and the governors see the work done by OERI as fundamental to making this nation's schools and students once again the best in the world.

I believe that OERI can supply the elements necessary-- I believe that we can and will exceed the President and the governor's expectations--if we set our sights (and focus our efforts) on three broad goals.

First, I want to see more emphasis on "putting research into practice." This involves more than simply getting more information to more people who can use it (though we must do that, too). Both the substance and the form of our work must reflect the needs of practitioners. In other words, the information we glean from research, practice, and statistics--and our methods for disseminating it--must be driven by the needs of the people in the field, the people we hope will use such information to improve student learning.

And it's got to be good information--scientifically valid, accurate, and timely information. It's got to stand up to rigorous scrutiny.

But it doesn't matter how air-tight or brilliant our research is...it doesn't matter how many organizations and individuals receive our publications, for instance, if those publications sit on a shelf collecting dust.

We can't afford that. We have to make information from research, practice, library programs, and statistics "connect" with our audiences. We have to think of our work from the perspective of the practitioner, from the viewpoint of teachers and principals, parents and policymakers--the people on the front lines working face-to-face with students.

To do that, we are going to have to work together as a team. That is the second goal I see for us.

Every lab, every center, every clearinghouse, and every one of us across the street at 555 New Jersey must work together to tackle the challenges before this agency. Every person in this agency must participate as a bona fide member of the OERI team. And every one of us in OERI must be a team player. No bickering. No turf battles. All our energies must be brought together in a "full-court press" to put research into practice.

To help us do that, I'll be asking for a comprehensive study of the Federal education research enterprise.

It is time for such a study. The education horizon has changed since our R&D system was conceived a quarter of a century ago. States have assumed a much larger role in education reform; new education R&D organizations have sprung up; ERIC and NDN were born and have grown.

There has not been a comprensive, in-depth look at that Federal R&D system--at all its parts and how those parts fit together--since the 1960s, when the current configuration of labs and centers (and other institutional programs) was established.

We have seen what a top-notch, comprehensive evaluation can do. Several years ago, in response to a National Academy of Sciences evaluation, NCES launched an effort to improve its operations and to close gaps in its data. Today, NCES data are cited regularly in newspapers and by decisions-makers across the country. The quality and stature of its work has grown.

A thorough re-examination of the various individual R&D components and how they interact would help us to answer some important questions: How can various (new and existing) R&D components be put together in a way that enables them to operate more efficiently, more effectively, and more productively as a system? What must the fundamental features and components of such an R&D system be? What features are essential to that system if it is to inform, guide, and assist American schools and communities in improving student performance?

The answers are critical. If the U.S. is to enter the 21st century with the best schools and students in the world, we've got to have a state-of-the-art R&D system for measuring and analyzing and reporting our progress. As soon as possible.

But the boundaries of that system must be extended. Right now, a great deal of education research is being conducted entirely outside the OERI system. That is healthy and as it should be. But we must keep up with developments and activities throughout the Department, and beyond it. It is in our interest, and it is in everyone else's interest, for us to keep other offices informed about what we're doing and for other offices to keep us informed about what they're doing. The benefits are mutual. And they extend beyond the Beltway.

That leads to the third goal that I envision for OERI. We must build a team that includes all parts of the Department--even of other departments--that can contribute to the solution of the problem.

Take Chapter 1, for instance. Taxpayers spend some $4 billion a year on Chapter 1 programs aimed to strengthen the reading and mathematics performance of low-achieving youngsters. The work of the Center for Research on the Effective Schooling of Disadvantaged Students ought to build on the lessons learned from Chapter 1--and on lessons from other compensatory programs in and outside the Department. And Chapter 1 should be able to easily draw from the work of the OERI centers, labs, clearinghouses, library programs, etc.

Another example is the National Science Foundation. It administers tens of millions of dollars each year to improve science teaching and learning. Our center for improving science education (at Andover) ought to be talking and thinking and working closely with NSF. So should the people in our ERIC clearinghouse on science, mathematics, and the environment (at Ohio State) and our people in the Eisenhower program.

Of course, some inter-Department and inter-agency collaboration is underway. I'm delighted that our FIRST office, for instance, is working with the Office of Elementary and Secondary Education to convene, for the first time, a joint meeting of science-education leaders from all 50 states. I know there are other examples of collaboration already going on in this agency; I'd like to see more of it.

I'm not advocating collaboration for collaboration's sake. What I'm suggesting is that people who share similar purposes ought to combine their knowledge and work together to identify obstacles to student learning--and to develop strategies for overcoming those obstacles.

As I've said, we need to do that not only with other offices in the Department, but with other

Federal agencies. For instance, last year the Education Department joined with the Commerce and Labor Departments to collect data and put together two publications--one on how to identify and solve literacy problems in the workplace (The Bottom Line, with Department of Labor only) and one on business's view of America's workforce (Building a Better Workforce, all three Departments). This year, OERI staff assisted the Department of Labor in reviewing reports and developing a plan for solving America's crisis in the workforce (under the auspices of the Commission on Workforce Quality and Labor Market Efficiency) and in working with the Defense Department on issues regarding the defense workforce.

We need to do more of that--again, not because there is any inherent virtue or benefit in interagency collaboration, but because it can broaden and strengthen our knowledge base (as well as the R&D infrastructure and its impact on practice).

Changes in society and the workplace dictate that the scope of our knowledge and activities expand. For instance, various kinds of formal instruction are mushrooming outside the traditional classroom; business and industry, and the military spend billions of dollars each year on education and training.

We all know that much of the money that business and the military spends on education goes to remedial education. But much of it does not. Much of it is spent on upskilling competent workers for new demands in the workplace. Both workers entering the workforce and those already on the job are going to have to read, write, speak, listen, calculate, and think better than ever before, if the U.S. is going to compete economically with the rest of the world. Our mission must include all fronts--early childhood, K-through-12, postsecondary, and the current workerforce.

Expanding our team means also that we must work more closely than ever with groups outside the government--professional, parent, and policy organizations. As you know, the American Association for the Advancement of Science and the National Council of Teachers of Mathematics have

just published comprehensive curriculum guides. My question is, what can we do to help those curriculum guides translate into better teaching and learning in science and mathematics?

The national PTA just issued a book on "what parents can do to secure the best possible education for their children." The National Governors' Association is in the process of defining what every high school graduate ought to know and be able to do. Again, what can we do to amplify, augment, and increase the impact of these efforts?

Those are three goals I envision for OERI: putting quality research into practice, working together as a team, and expanding the circle of players on our team.

But those three goals are the means, not the end, to our ultimate objective. Our ultimate objective is to improve student learning--by helping schools and communities across the country meet the needs of their children and adult learners whether in the classroom, in the workplace, in the library, or at home.

Here, then, is the challenge I see for all of us here today and for all OERI staff. As we go about our work, let's bear in mind this question: Is there anything else we might do to improve the performance and outcomes of students and learners? (Is there any way to do what we already do better?)

President Bush and the governors are looking to education research, development, statistics, library programs, math-and-science programs--and the dissemination of information from all of these--to help gauge and guide the Nation's states and schools toward our education goals.

Secretary Cavazos, Under Secretary Sanders, OERI...I look forward to working with the team that can provide it.

Thank you.

ERIC Directors Meeting

October 27, 1989

Christopher T. Cross

I'm delighted to have this chance to be here today. I want to talk with you about three overarching goals I envision for OERI and about those goals mean for ERIC. But first, I want to look at the bigger picture, at the education landscape and what I see as an auspicious sign for our work.

As you know, education R&D has grown in stature over the last few years. Educators, business people, college presidents, state-legislator groups, the governors' association, and others have called for more support for education research, statistics, and practice.

It has been widely reported that, last month in Charlottesville, in addition to agreeing on a process for establishing national education goals, President Bush and the governors agreed on something else. They agreed that the Federal responsibility in education lies with two main tasks, and that one of those tasks is "to provide research and development for programs that work, [to furnish] good information on the real performance of students, schools, and states, and [to provide] assistance in replicating successful state and local initiatives all across the United States."

Their agreement has obvious implications for OERI.

On Monday of this week, I testified before the Governmental Affairs Subcommittee on Government Information and Regulation. One of the questions that the Subcommittee asked was whether we "have the information and research needed to develop successful strategies" to advance as a Nation in the goal areas agreed to by the President and the governors.

I told the Subcommittee about some of the considerable improvements that have taken place recently in the National Center for Education Statistics. I mentioned some of the improvements that have been seen in the Office of Research, in Programs for the Improvement of Practice, and in Information Services as well--ERIC is certainly one example.

I also told the Subcommittee that, in terms of student learning, we still haven't made nearly enough progress. By whatever measure of performance you choose--SATs and ACTs, the National Assessment of Educational Progress, polls of college professors or surveys of business people--they all tell us the same thing. We haven't made a measurable difference in the one area that matters most: student learning.

That has to change--and the Nation's education R&D system has to help lead the change. As I suggested to the Subcommittee, and as I suggested to OERI staff two days ago (in my "inaugural address"), OERI and its components can and will help lead the way to higher levels of school performance and student learning--if we all set our minds to achieving three overarching goals.

First, we must do a better job at putting research into practice. That means more than "dissemination"; it means more than just "getting information to the people who could use it." I'll say more about this in a minute.

Second, we've got to increase the flow of information and the degree of collaboration among the various OERI components. OERI's "extended family" must do more talking and thinking and working together.

As you know, the 16 clearinghouses, 20-some research centers, and 9 regional labs are scattered across the country. But they can no longer afford to remain "distant cousins."

ERIC has demonstrated that those physical distances need not be a barrier to collaboration;

despite those distances, you have built the largest education database in the world.

That is a lesson I hope the entire OERI family can learn from. We have got to work more effectively as a system, as a team.

Teamwork will be a priority across and throughout the agency. But it must not be limited to OERI or to the clearinghouses, labs, and centers.

This leads to the third goal. Our "team" has to expand to include the other 14 offices in the Department of Education, and beyond the Department to include other Federal agencies and non-Federal organizations, both inside and outside the Beltway.

The Clearinghouse on Science, Mathematics, and Environmental Education, for instance, ought to be working closely with the science research center (at Andover), with the Center for the Learning and Teaching of Mathematics, with the Learning Research and Development Center (at Pittsburgh, which was just awarded $10 million to improve math instruction for disadvantaged students), with the Eisenhower math and science people, with each of the regional labs, NDN, Chapter 1 staff, NSF people.

But it shouldn't stop at the Federal level. Expanding our team means also that we must work more closely than ever with groups outside the government--professional, parent, and policy organizations. As you know, the American Association for the Advancement of Science and the National Council of Teachers of Mathematics have just published comprehensive curriculum guides. My question is, what can we do to help those curriculum guides translate into better teaching and learning in science and mathematics?

The national PTA just issued a book on "what parents can do to secure the best possible education for their children." The National Governors' Association is in the process of defining

what every high school graduate ought to know and be able to do. Again, what can we do to amplify, augment, and increase the impact of these efforts?

Those are questions we must answer--and those three goals must be foremost among the priorities we pursue--if our work is to make a significant impact on the performance of American schools and students.

To increase that impact, I am going to be requesting a comprehensive study of the Federal education research enterprise--a study similar to what the National Center for Education Statistics underwent several years ago. (I mentioned the need for such a study at the ERIC Directors Meeting in May.)

As for ERIC, I'm delighted to see that in the years since the "redesign study," ERIC has already planned and implemented various efforts to move in the general direction of the three goals I envision for OERI.

Clearinghouses have enlisted over 500 "partners" to help be extra eyes and ears--and mouths--for ERIC. I understand that many of our research centers and regional labs are among ERIC's "partners."

That's good. But is it good enough? Shouldn't every lab and center (and every OERI-supported institution) be part of the effort to find documents worth putting into ERIC, to identify new developments and newly emerging trends, and most important, to introduce ERIC to more people who might benefit from it?

ACCESS ERIC is, of course, helping. But dissemination has to become a major focus not only of this new "gateway" to ERIC and not only throughout ERIC, but across all OERI grants and commitments.

As I mentioned a moment ago, when I think of "dissemination," I think of a lot more than simply sending information to people. I think of: listening to people in the field, trying to identify their information needs, understanding how they currently attempt to fulfill those needs, and what barriers (for users) exist in the current system.

The needs of users and potential users must come first. From the design phase to the dissemination and delivery phase, we must view our products and services from the perspective of the customer. We must continually seek to package and deliver the goods in ways that will be readily grasped and easily understood by the teachers, parents, principals, and policymakers who must use our work, if it is to make a difference student learning.

ERIC Digests in full text will help. So will more practitioner-oriented publications, more information about statistical databases, and the expanded array of user services.

You and your staffs do Herculean work. Adding nearly 30,000 entries to the database last year and distributing more than a million complimentary ERIC products is just part of what you accomplished.

But I would ask that, as you and your staffs go about your work, bear in mind a question: Is there anything <u>else</u> we might do that can help the people of the front-lines to improve the performance of students wherever they are (at school, at home, on the job)? Is there <u>any way</u> to do what we <u>already</u> do <u>better</u>?

In the end, the value of our labor can be gauged, really, by one measure: the difference it makes in student learning.

I look forward to working with you making our work make the difference.

Testimony, House Committee on Science, Space, and Technology; October 31, 1989; Chris Cross

Mr. Chairman, honorable members of the Committee, it is a pleasure to be here. I appreciate this opportunity to talk to you about what I see as one of the most pressing education issues facing Americans: teaching and learning in mathematics and science.

I did not come here today to lament our youngsters' inadequate achievement. We all know that American students consistently come in last or near last on international studies of mathematics and science achievement. Many of us are aware that only about half of our high school juniors can do junior high math or know enough about science "for informed participation in the nation's civic affairs," according to the most recent National Assessment of Educational Progress. That is one reason that last month in Charlottesville President Bush and the governors agreed that one of the seven national education goal areas needs to address "the performance of students on international achievement tests, especially in math and science."

Today, I want to describe some of the Department of Education's efforts to improve teaching and learning of mathematics and science in the United States. For the purposes of our discussion today, I want to separate those efforts into three categories: assessment and statistics, direct assistance to states and schools, and research. These

three categories are hardly discrete; they overlap and interact within and beyond the Department of Education. Mr. Chairman, one theme I want to stress today is the collaborative work underway among offices within the Department, and between the Department and other Federal agencies and organizations.

First, as the Committee knows, assessment and statistics are critical to gauging the Nation's progress toward the national education goals to be unveiled in February. Most of what we know about American students' performance at the national level comes from the National Assessment of

Educational Progress (NAEP) and various international assessments, all of which are overseen and supported by the National Center for Education Statistics (NCES).

The National Science Foundation (NSF), the Council of Chief State School Officers (CCSSO), and some 18 education organizations, as well as other offices within the Department, have been working with NCES to create the design and establish the objectives for the 1990 NAEP. As the Committee knows, this national assessment, by furnishing state-by-state data on eighth graders' performance in mathematics, represents the first ever state-comparable assessment of student performance at the national level. NCES is also planning, with input from NSF, a major international study that will compare the mathematics, science, and geography achievement of 9-year-olds and 13-year-olds in some 20 nations, including for the first time youngsters in the Soviet Union and China. Results from this international study and from another comparing the reading performance of fourth graders and ninth graders in 40 countries are expected by the end of 1992.

As for statistics collection, NCES is adding a supplement to the National Education Longitudinal Study of 1988 (NELS:88), at the request of and with funding from NSF. Data from that supplement will provide a picture of the nature and quality of mathematics and science courses offered across the United States. Also, NSF and NCES are jointly funding the development of a teacher supply-and-demand model in seven Northeastern states.

That model would help provide a clearer picture of a fundamental obstacle to improving mathematics and science education in the United States. Today, many elementary teachers are ill-prepared to teach mathematics and particularly science, and most secondary school principals encounter difficulties in finding individuals qualified to teach chemistry, physics, and computer science; these conditions are well documented. Mr. Chairman, I want to point to the President's Alternative Teacher and Principal Certification proposal as one important strategy for addressing this problem, especially at the secondary school level. The proposal would help enable states to open their schoolhouse doors to scientists, engineers, professors, lab technicians, and other individu-

als who, though lacking an education degree, may have the experience and expertise to make science and mathematics come to life in the classroom. Evidence from New Jersey and elsewhere suggests--and we in the Department believe--that alternate certification programs could increase the Nation's supply of teachers in science and mathematics. FIRST is currently supporting a study of alternate certification programs, and Programs for the Improvement of Practice (PIP) in OERI is planning a conference on alternate certification to be held in December.

NSF has worked with NCES in developing a number of items for the National Postsecondary Student Aid Survey, which supplies data on students' backgrounds and some of their educational experiences in various fields. The National Endowment for the Humanities, the National Institutes of Health, the Department of Agriculture, and NCES are helping to fund NSF's Earned Doctorates Survey, which indicates the numbers, demographic distributions, and career plans of Ph.D.-earners in various fields each year.

Finally, NCES furnishes a wealth of data on other issues related to mathematics, science, and engineering education--the number of bachelor's and master's degrees conferred in various fields of mathematics, the sciences, and engineering; collegiate enrollments in different fields of study; employment status, earnings, and types of work for bachelor's degree holders in various fields; changes in demand for mathematics and science teachers; changes in high school graduation requirements; characteristics of mathematics and science teachers, including their career histories and plans, degrees earned, number and types of courses taken in mathematics and science, teaching experience, compensation, working conditions, and courses taught; the research and teaching responsibilities of professors, the demographic distribution of science and mathematics faculty in higher education, faculty career paths, their likelihood of leaving the teaching profession.

Mr. Chairman, the Department provides various forms of direct assistance to states and schools in an effort to help them improve teaching and learning in mathematics and science. The Nation's largest program dedicated to that is the Dwight D. Eisenhower Mathematics and Science

Education program, which provides grants to states and supports activities of national significance.

The "state grants" side of the Eisenhower program addresses the obstacle I mentioned a moment ago, teacher preparation in mathematics and science. The Eisenhower state grants program supports hundreds of state and local projects aimed to strengthen instructional quality and teacher knowledge in mathematics and science. Many of the grants support teacher-training projects at the elementary level and for minority teachers. But one key to the success of this program, Mr. Chairman, is that the grants are used to address instructional problems by the people close to those problems--state and local administrators.

All projects require cooperation between institutions of higher education and schools at the precollegiate level. And in administering the program, the Office of Elementary and Secondary Education (OESE) works closely with other offices in the Department and with state officials who administer the grants. OESE, other Department staff, and state officials work together each year, for instance, to identify, collect, and disseminate information on 100 exemplary state grants-supported projects. One exemplary project sponsored one-week institutes for 115 high school teachers of chemistry, mathematics, and physics--institutes taught by "master teachers" in these disciplines. Another trained hundreds of teachers and has provided thousands of students with a discovery-oriented algebra curriculum.

To get a clearer idea of how Eisenhower state grants are used, of what kinds of typical and exceptional projects and practices the grants support, and of their impact on student learning, the Department launched in 1988 a two-year study that will provide the first ever comprehensive "national profile" of the Eisenhower state grants program. NSF, CCSSO, and hundreds of individuals from state and local agencies have provided guidance and input on the study, which is being funded by the Department's Fund for the Improvement and Reform of Schools and Teaching (FIRST) and administered by the Department's Office of Planning, Budget, and Evaluation (OPBE).

The "national programs" side of the Eisenhower program, which is administered by the Fund for the Improvement and Reform of Schools and Teaching (FIRST) office, supports projects of national significance, mostly collaborative projects among school districts, universities, science museums, and the business community. One grantee is implementing an innovative secondary-school science program that was designed with a grant from NSF. Another is identifying films useful for teaching physics and is editing those films into short vignettes which, augmented with interactive software, will be distributed nationally.

I would like to leave with the Committee a general summary of the program and descriptions of the 69 projects currently being supported by the Eisenhower national programs. Also, I want to mention that FIRST administers the Fund for Innovation in Education (FIE). FIE supports a number of projects using technology to strengthen teaching and learning in mathematics and science. FIE also helps support the NSF-administered Square One, an educational television series aimed to motivate 8-to-12-year-olds to learn and use mathematics.

Mr. Chairman, I was pleased to find when I arrived at OERI two weeks ago much collaboration underway throughout OERI and the Department. For instance, FIRST is already working closely with OESE, with other offices in the Department, and with other Federal agencies. FIRST and OESE continually seek input and advice from NSF, the Department of Energy, the National Aeronautics and Space Administration (NASA), and other Federal agencies. At the Annual National Conference of Title II State Coordinators each year, NSF staff set up an exhibit, distribute information, and are responsible for about a half-day of the conference program. Similarly, FIRST and OESE staff participate in NSF conferences and help review applications for NSF grants.

Tomorrow marks the beginning of FIRST and OESE's first-ever joint national conference. Science-education leaders from all 50 states, including directors and leadership teams for the 29 FIRST discretionary mathematics and science programs, will be here, as will representatives from throughout the Department and its programs--staff from the National Diffusion Network (NDN),

from our science and mathematics research centers, from information clearinghouses, and elsewhere. Participants will also include representatives of professional associations as well as the Department of Energy, NASA, and the President's Science Advisor. All together, nearly 250 science experts and educators will be here to share success stories and plans related to some of the most innovative curricula and teacher training projects in the Nation.

Let me mention also that FIRST is planning a textbook conference for the spring of 1990. Science teachers, college professors, textbook publishers, and others will be brought together to talk about the role of textbooks in promoting student learning in mathematics and science--and about what changes in textbooks are needed to boost their effectiveness. Various agencies and groups, including NSF, are involved in planning and the activities of the conference.

Mr. Chairman, I'd like to turn now to some of the programs in the Department that, while not devoted exclusively to mathematics and science, nevertheless provide assistance to states and schools to improve teaching and learning of these two subjects.

Any discussion of mathematics education in the U.S. must include the Nation's largest elementary-secondary program, Chapter 1. Administered by OESE, Chapter 1 funds go to virtually every school district; Chapter 1-supported instruction reaches about one out of nine students K-12 in the Nation. About one-quarter of Chapter 1 funds support mathematics instruction; nearly half of the youngsters participating in the program receive Chapter 1-supported mathematics instruction. A recent study of Chapter 1 found that student learning gains, as measured by achievement scores in 1986-87, were slightly higher (by several percentile points) in mathematics than in reading. The study also showed learning gains to be larger in the lower grades.

In OERI, Library Programs recently supported a "Statewide Children's Science Book Fair" that involved the state's Science and Industry Museum and every school system in the state. The National Diffusion Network (NDN) currently makes 42 mathematics and science programs available

to elementary and secondary schools and to colleges, universities, and other institutions. NDN programs have been implemented in hundreds of classrooms, and 10,000 copies of booklets describing the mathematics and science programs have been distributed. Five of the programs were developed with NSF support, including the Life Lab Science Program, which is now being expanded with NSF funding to include more science topics and to reach more grade levels. NDN staff work closely with NSF and OESE. NDN participates in OESE conferences and NDN science and math programs have been implemented with OESE state grants. NDN has also collaborated with the NSF-supported Cosmos Corporation in identifying exemplary science and mathematics programs.

Mr. Chairman, collaboration between the Education Department and NSF has made clear that each agency brings to the relationship certain strengths. For instance, NSF excels at developing curricula, some of which is done in cooperation with the Department's research centers. The Department of Education, on the other hand, has more extensive networks and experience in disseminating and implementing successful programs. NDN, for instance, reached over 27,000 schools last year alone.

NDN is administered by OERI's Programs for the Improvement of Practice (PIP), which also administers the Department's nine regional laboratories. Most of the regional labs work with states and schools to improve instruction in math and science.which, like NDN, are administered through OERI's Programs for the Improvement of Practice (PIP), For instance, regional labs have sponsored workshops on "Family Math" and hands-on mathematics programs, held seminars on new mathematics approaches for state and local education agencies, conducted evaluations of math programs, collaborated with NSF to train science teachers, worked with PBS to hold teleconferences that included discussion on math and science education, produced publications such as "Science Education in Rural America," designed courses for students not headed for college, evaluated math and science computer software, and conducted other activities.

I think it is clear that the Department works closely with NSF and that we will continue to do

so. Let me mention another agency that we hope to collaborate more with. Earlier this month, the Education Department assisted the Energy Department in developing a national conference on science education. Secretary Watkins promised an "action plan" to improve science and mathematics education, and as Secretary of Energy, he commands considerable array of resources--a network of 50 laboratories and some 135,000 scientists. Think what could happen if those labs were opened to students and teachers, if those scientists were to create and offer intensive workshops for teachers. Upgrading teachers' knowledge of science and mathematics is central to improving student learning in these subjects. We hope to work with the Energy Department in this effort.

Mr. Chairman, the Department also assists postsecondary students and institutions of higher education. Our Minority Science Improvement Program, for instance, offers institutional grants, cooperative grants, and other kinds of grants to bolster mathematics programs in minority institutions. Another program, Graduate Assistance in Areas of National Need, provides fellowships to financially needy graduate students of superior ability studying in areas of national need--areas that include science, mathematics, and others designated by the Secretary of Education in consulation with NSF, the National Academy of Sciences, the National Endowments for the Arts and Humanities, and other federal and nonprofit agencies and organizations.

The Fund for the Improvement of Postsecondary Education (FIPSE) in 1988 supported nearly 50 projects related to science, mathematics, and engineering. One project helped about 15 colleges and universities adapt a retention program that has promoted high levels of achievement in mathematics and high rates of persistence among minority undergraduates. Another FIPSE-supported project prepares mid-life science and technical professionals for new careers in secondary school science and mathematics teaching through a one-year teaching internship. FIPSE and FIRST support also several community college projects designed to prepare at-risk secondary students for entry into technical programs in local technical and community colleges.

Mr. Chairman, let me now turn to the third category, research. At least 10 of the Depart-

ment's 21 national research centers are involved with one aspect or another of mathematics or science education. Projects underway at the research centers include identifying the intuitive mathematical knowledge that youngsters bring to the classroom, pairing students and giving them memory tools to increase their performance in solving arithmetic story problems, identifying inadequacies in teacher knowledge, analyzing biology textbooks, investigating strategies for measuring higher-order thinking in mathematics, devising techniques for examining the "instructional sensitivity" of math test questions, developing procedures for assessing classroom coverage of mathematics content and for assessing the impact of tests on secondary mathematics classrooms, examining the writing students do in science classes, studying the operation and role of mathematics and science departments in secondary schools, analyzing the impact of policies on what is taught and learned in science and mathematics, and other efforts.

Activities at two centers in particular bear mentioning. The Center for the Learning and Teaching of Mathematics (at Madison, Wisconsin) is working to identify fundamental knowledge that should be taught to all students, to organize and sequence that knowledge, to bridge mathematics to other subjects, and to narrow gaps between the prescribed curriculum (that is, what students are supposed to learn) and the achieved curriculum (what students actually learn). The National Center for Improving Science Education (at Andover, Massachusetts) is examining what tests currently measure and what they ought to measure, the content of science curricula and instruction, and the knowledge and skills of teachers--how teacher preparation, staff development opportunities, and school and school district structures support (or do not support) the teaching of science.

Mr. Chairman, NSF was involved in the design and ongoing work of those two research centers. Its guidance, along with advice from other science and mathematics agencies and organizations, have been and will continue to be sought and incorporated into the upcoming competition of new research centers. For that competition, we have proposed 12 research centers, including a center for the study of teaching and learning in mathematics, a center for the study of teaching and learning in science, and other centers that will do important research in science and mathematics

education.

I would like to mention one other research center that we have supported, the University of Pittsburgh's Learning Research and Development Center. While mathematics is not the only discipline the Pittsburgh center investigates, this month it was awarded a $10 million Ford Foundation grant to implement "Quantitative Understanding: Amplifying Student Achievement and Reasoning," or QUASAR, a project aimed to improve mathematics instruction and learning in middle schools that serve economically disadvantaged students.

The Department's research centers are administered by OERI's Office of Research, which is directed by Dr. Milton Goldberg. Dr. Goldberg has been actively working with NSF and other Federal agencies, and he is the Department's liaison with Dr. Shakashiri's office at NSF. In March, Dr. Goldberg addressed representatives of 32 Federal agencies at a conference sponsored by the Federal Interagency Committee on Education (FICE) and the Mathematical Sciences Education Board. His remarks are summarized in a report on the proceedings of that conference, which was published last week and which I would like to leave with the Committee.

As for higher education research related to mathematics and science education, the Office of Research has sponsored a number of projects. One project resulted in models that faculty can use to examine what college graduates who major in biology, chemistry, computer science, mechanical engineering, or physics actually know in that field. Some 3,000 copies of the report on this project, Signs and Traces, have been distributed to college science faculty and others.

A result of another project, a 1988 study of mathematics course-taking in college, NSF contributed to a detailed analysis of college student course-taking in more than 200 specific college courses in science, engineering, mathematics, computer science, and engineering technologies. The joint Office of Research-NSF study led to another project that found graduates of business administration programs to be, judging by their college coursework, unprepared to deal with the technol-

ogy, quality control, and international demands of the business world today.

Findings from the research centers, regional labs, in-house research, and external research, as well as statistical information, are available to the Committee and anyone else through the Education Resources Information Center (ERIC) database. Like the other 14 ERIC clearinghouses, the Clearinghouses on Information Resources (or education technology and information sciences; at Syracuse, New York) and on Science, Mathematics and Environmental Education (at Ohio State University) work with national associations and government agencies, make presentations, and produce bulletins, digests, summaries, and syntheses of research. The Clearinghouse on Science, Mathematics and Environmental Education estimates that it responds to an average of 2,500 requests for information per month. Last week, that Clearinghouse brought together representatives from NSF, the Mathematical Sciences Education Board, and more than 15 other organizations to discuss ways to increase communication and the flow of information among them and their organizations.

Mr. Chairman, those are some of the efforts in assessment and statistics, direct assistance, and research through which the Department is working to improve mathematics and science teaching and learning.

I would like to conclude my remarks today by pointing out briefly how some of the initiatives President Bush proposed last year in The Educational Excellence Act of 1989 would also help. The National Science Scholars program would provide not only grants but national recognition for 500 undergraduates excelling in mathematics and science. Mr. Chairman, students who excel in these two demanding disciplines deserve such rewards. And by bestowing upon them and their achievements prestige and national visibility, the Science Scholars program could encourage more American students to work harder and invest greater effort in these two subjects, which are vital to our national interest. A lack of student effort is one reason we are doing poorly as a Nation in these subjects.

Another of the President's proposals, the Merit Schools program, would strengthen the mathematics achievement of disadvantaged youngsters. As the Committee knows, one of the criteria for judging schools would be test scores, including mathematics scores. I believe the Merit Schools program could go a long way toward improving learning in mathematics and other subjects for disadvantaged students--the youngsters who stand the most to benefit from it.

The President proposed two programs aimed to encourage and support good teaching. I mentioned earlier the Alternative Teacher and Principal Certification proposal, which could give states and schools more freedom and flexibility in addressing their teaching force needs. The other proposal, Presidential Awards for Excellent Teachers, would provide national recognition and rewards for outstanding teaching. The proposal is based on a deep belief I share with the President: if we want to more excellent teaching, we must recognize and reward it.

Mr. Chairman, the Department is committed to improving mathematics and science teaching and learning for all students. That commitment is shared by NSF, the Department of Energy, and in a number of other agencies and organizations inside and outside the Federal government, as indicated in the programs I have mentioned today. Obviously, we are working closely together. That is not to say we can't work more closely and more productively together. Collaboration and teamwork within and outside the Department to increase the impact of education information--information from assessment and statistics, practice, and research--is my top priority for OERI.

I speak on behalf of the Department in saying that we will be looking for opportunities to tighten and strenghthen inter-agency collaboration. We will be looking as well for new and unexplored avenues that could lead to increases in student learning in mathematics, science, and other important subjects. And we look forward to working with you and other distinguished members of the Committee to bring about these desperately needed improvements.

Thank you.

The First National Conference on the Dwight D. Eisenhower Mathematics and Science Education Improvement Program:

"Building Partnerships for Excellence in Mathematics and Science Education in the 1990s"; November 1-3, 1989

Christopher T. Cross

It's a pleasure to be here.

I think we're all aware of the growing concern about mathematics and science education in this country. Americans are worried about the fact that, when compared with students in other countries, our youngsters consistently come in last or near last on mathematics and science tests. The public is right to upset when only about half of our high school juniors can do junior high mathematics or know enough about science "for informed participation in the nation's civic affairs" (NAEP).

Our leaders are also concerned. As you know, a little over a month ago President Bush and the governors agreed on the need for national education performance goals in seven general areas. The second "goal area" listed in their communique (or compact) is, and I quote, "the performance of students on international achievement tests, especially in math and science."

Various Congressional committees and subcommittees have been holding hearings to find out what is being done--and what needs to be done--to address those goal areas and to improve student learning in mathematics and science.

Two days ago, I testified before the House Committee on Science, Space, and Technology. I

told them about this conference, about the Eisenhower state and national programs, about FIRST and the Office of Elementary and Secondary Education, about our collective (and a few of our specific) efforts to improve teaching and learning in science and mathematics.

One thing I told them about--and that I want everyone here to know about--is two important upcoming assessments of student performance in science and mathematics.

First, as many of you know, the 1990 National Assessment of Educational Progress will provide student achievement data that will permit us to make, for the first time, comparisons of student performance across states in one subject and for one grade level: 8th grade mathematics. The assessment will be administered in about four months (late winter/early spring). Results should be available in 1992.

Also in 1992 the results of another major assessment will be reported--an international assessment examining the mathematics and science achievement (as well as geography achievement) of 9-year-olds and 13-year-olds in 20 countries, including for the first time China and the Soviet Union. (This assessment will be conducted in the spring of 1991.)

Together, these assessments will provide a national and an international "profile" of student performance in mathematics and science. They will provide a baseline against which to measure the impact of our collective efforts.

But there is no need--nor can we afford--to wait for the results in 1992. Americans recognize the need for better teaching and learning of mathematics and science now--not just because we need more scientists and engineers; but because we need workers who possess mathematical and scientific competencies that can be built upon in the workplace; because we need citizens who have knowledge that illuminates vital and unavoidable public policy decisions (acid rain, global warming, ozone, Third World debt).

Mathematics and science can enable youngsters to see the world more clearly and to ask better questions about the way things work--in the classroom, at home, on the job, or in the voting booth. That is why these two "decision-making tools" must be developed in the hands and minds of all our children.

We all know that schools are not alone to blame for the shortcomings in American science and mathematics education. Societal values, television images of the "mad scientist," parents who believe that innate ability is more important than homework and intellectual effort--these attitudes are part of the problem.

But we also know that many elementary teachers are uncomfortable with mathematics and especially science. We all know that many secondary-school principals have a tough time finding people qualified to teach chemistry, physics, and computer science.

We all know that better teaching and better instruction are critical to better learning in these two subjects. Because unlike reading or writing or the arts, youngsters generally do not "pick up" science and mathematics on their own; they generally don't read about nuclear physics in their spare time. Science and mathematics require a high level of discipline, persistence--and a teacher in command of the subject and who knows how to develop youngsters' knowledge and competencies.

That's why this first meeting of America's top leaders for improving mathematics and science teaching and instruction is so important.

The Eisenhower "state grants" program, Eisenhower national programs, the Fund for the Improvement of Schools and Teaching, the National Diffusion Network, the national research centers on science and mathematics, the regional labs, ERIC clearinghouses--these are some of the members of the Department of Education's "team" for improving science and mathematics teach-

ing and learning.

I am delighted that each of those "team members" is present here today. I am delighted also that people from the 50 state education and higher education agencies, from over 50 state and local FIRST programs, from national associations of science and mathematics teachers, from the National Science Foundation, the Department of Energy, NASA, and the Office of Management and Budget are here.

One of my top priorities as Assistant Secretary for Educational Research and Improvement is to make information and "lessons learned" from research, statistics, and practice make a difference in education performance.

Doing that requires a team effort--pooling our knowledge, passing our "lessons learned" along to the people who must use those lessons if our efforts are to have an impact on teacher effectiveness and student learning.

This conference exemplifies that kind of team effort. I want to thank our people in FIRST and people in the Office of Elementary and Secondary Education (across The Mall) for bringing you all here together. The collective wisdom of the people in this room could substantially and nonincrementally increase the level of science and mathematics knowledge among students across the United States--if that wisdom gets used to guide reform efforts--if it gets into the hands of the people who are on the front lines of those efforts--teachers, parents, principals, policymakers, and students.

How can we do that better? That is one question for which I hope there are answers at the end of this conference.

That is the question I believe we must answer in order to produce the large-scale improvements in science and mathematics learning for all students. For our success will be measured not by

the number of projects we fund or the number of teachers our programs reach, but by the difference our efforts make in terms of student learning.

Our next speaker today is a man who has made a difference in student learning. His Laboratory at Yale, during the last two decades, has graduated more Ph.D.s in experimental nuclear physics than any other institution in the world.

He is on leave from his former position as Henry Ford II Professor of Physics at Yale University, where he founded and directed the A.S. Wright Nuclear Structure. One of the world's leading nuclear physicists, our next speaker has done pioneering studies on the structure and dynamics of nuclei and is considered the "father of modern heavy ion science." He has also played a part in the development of accelerators, of detection systems, and in computer-based acquisition and analysis systems.

For over 20 years, Dr. Bromley has been a leader in the national and international science and science-policy communities. He chaired the National Academy's Physics Survey in the ealry 1970s. As president of the largest scientific society in the world, the American Association for the Advancement of Science, and as president of the world-coordinating body for the International Union of Pure and Applied Physics, he has served as one of the leading spokespersons for U.S. science and for international scientific cooperation.

I could go on, but I think we would all prefer to hear his own words than words about him.

It is my honor and privilege today to introduce one of the most influential scientists in the United States, the Assistant to the President for Science and Technology...and Director of the Office

of Science and Technology Policy in the Executive Office of the President, Dr. Allan Bromley.

Bring
as promised

Remarks of

Christopher T. Cross
Assistant Secretary
For Educational Research and Improvement
United States Department of Education

LEAD Directors-National LEADership Network Annual Meeting

Washington, D.C.

November 13, 1989

I'm delighted to be here and have this opportunity to talk with the people providing much--if not most--of the in-service training for America's principals and superintendents.

The need to develop strong leadership in schools is greater than ever before.

I think we are all aware that there are enormous changes in the offing for American education. As you know, two months ago President Bush and the 50 governors met to discuss national performance goals in education.

The summit set a tone for the Nation, and it set an example for states and communities. Think of the impact it would have on schools if <u>every</u> state were to call together its top leaders to launch a process for establishing its own performance goals. Imagine if every local <u>community</u> did the same. All of us here know what a difference it makes when schools have clear goals.

One message that was implicit in the education summit is that, whatever performance goals are agreed to, schools must not be expected to reach those goals by themselves. Schools must have <u>help</u>. Local businesses, local colleges and universities, community colleges, local government, and other organizations must get into the act. Resources throughout the community must be tapped and mobilized to move schools and students toward those goals.

Tapping and coordinating new resources depends on leadership--usually, from a strong principal or a strong superintendent--ideally, from both. That has obvious implications for these 57 LEAD projects and for the National LEADership Network.

But the need to develop bold leadership in American schools involves more than identifying new resources or setting performance goals, though both of these are

important. Bold leadership is needed because the structure of American education is changing. Leaders are needed to steer and guide those changes.

In the past year or so, for instance, we have seen three state legislatures give parents and students their choice of which school to attend; some 20 other states are talking about similar proposals. A number of states and districts are beginning to emphasize higher-order thinking; several states are pioneering assessments that will enable them to measure students' reasoning and higher-order intellectual tasks. States are moving toward accountability systems that link incentives to performance at the school-building level. Today, most states have drafted regulations to allow more budgeting and staffing decisions by individual schools.

"Restructuring" has become a rallying cry for many who talk about education reform these days. A group of educators and policymakers that OERI convened last month agreed on a general definition for that term, restructuring. They agreed, and I'm paraphrasing slightly, that restructuring refers to activities that enable the education system and educators to use resources in nontraditional ways for the purpose of improving student performance. They agreed that those activities must include, as a critical component, assessments that document the success or failure of those new uses of resources.

That definition portends wide latitude for experimentation by the people in our schools. One form of restructuring, school-based management, for instance, often requires that teachers and parents take on new roles and new responsibilities. But perhaps the most dramatic and cataclysmic changes are required of the school leaders--superintendents and principals.

I think most of us here agree that school-based management and other forms of restructuring are needed.

But what happens when a traditional-thinking school leader, who has been doing things the same way for 10 or 15 years, is suddenly given new freedom and wide latitude to use resources in whatever way he or she can imagine?

We all know that today's principals and superintendents were not trained for the tasks that restructuring and decentralization are soon going to demand of them.

The situation reminds me of a Matthew Arnold poem in which his visit to a Medieval monastery causes him to see himself--and by implication, Victorian England--"[w]andering between two worlds, one dead, the other powerless to be born" ("Stanzas from the Grand Chartreuse").

American education today faces a similar crossroads or "paradigm shift." The old assembly-line model of education may not be dead, but the prognosis is not good. And the new education decentralization and restructuring is, in reality, powerless to be born--unless schools are supplied with enlightened leadership.

It is largely up to principals and superintendents lead schools into the new world of restructured schools. But the administrators in our schools today were hardly trained for the tasks restructuring and decentralization demand.

That is where this group comes in. LEAD and the National LEADership Network are among the few institutions devoted to improving the performance of leaders currently in our schools. Never has that task been so important.

I understand that the LEAD centers are laboring under a mandate to "institutionalize." Let me suggest that there is really only one way to succeed. Do what you were created to do. And do it well. The <u>need</u> is there. Your task, as I see it, is to figure out how to <u>tap</u> that need--how to transform the need for leadership training into a <u>demand</u> for such training. Then <u>supply</u> that training, and supply it well.

That is your challenge. I want to encourage you to draw on OERI to help you <u>meet</u> that challenge.

My overriding goal, as Assistant Secretary for Educational Research and Improvement, is to see that education research makes a difference in education practice. As you know, we support nine regional laboratories, 21 national research centers (2 on educational leadership), 16 ERIC clearinghouses, the National Diffusion Network, and other projects. My mission is to encourage and enable these various components to function as a system, as a team, working together to improve student learning.

Of course, OERI's stock in trade is information--information from research, practice, and statistics. OERI's mission is to supply such information to people on the front lines of education--teachers, parents, administrators, and others who must <u>use</u> that information if it is to make a difference in student learning.

Obviously, there is a natural opportunity for collaboration between you here today and many of OERI's other team members. I realize you are already taking advantage of it in some ways. The regional labs are working closely with the LEAD centers in their regions. Another example is the recent collaboration between LEAD and the National Center for School Leadership at the University of Illinois.

I want to encourage more of that. If research is to have

an impact on practice, practice must also have an impact on research; the needs of practitioners must inform the work of researchers.

Let me conclude by just reiterating that your efforts are crucial to the structural changes in store for American education. Few groups are out there who can help school leaders structure changes in their schools so as to measurably and significantly improve school performance and student learning. That, after all, is where it all has to add up. Our efforts must be measured by the improvements they make in student learning.

I hope you will keep that in mind as you work to develop school leadership. And I hope you will look to various members of the OERI team for information and assistance.

I look forward to working with you. Thank you.

The Second National Forum on Substance Abuse Issues in Higher Education; November 15-17, 1989

Christopher T. Cross

It is an honor to be here and participate in this second National Forum on Substance Abuse Issues in Higher Education. I want to thank you all for giving your time and effort to help make American college campuses drug free.

We in the Office of Educational Research and Improvement (also known as OERI) are combatting drug abuse on three fronts, which I want to just mention. First, OERI is supporting the development of a variety of early childhood drug prevention materials, methods, models, and curricula. Second, OERI has so far turned the national spotlight on 77 elementary and secondary schools that have exemplary drug-prevention and intervention programs, through our Drug-Free School Recognition Program. And third, we support this Network of Colleges and Universities Committed to the Elimination of Drug and Alcohol Abuse.

This Network exemplifies how national concerns ought to be addressed. For if we are to advance in the face of this problem as a Nation...if we are going to win the war on drugs...we must do it through coordinated, collaborative, and comprehensive efforts. We must put our heads together and pool our knowledge about programs and policies that work to

deter drug and alcohol abuse.

Drugs are a visible sign of an invisible but very real hurdle to learning. Impulsiveness. The pursuit of immediate gratification.

Learning requires persistance, effort, mental sweat. But it pays off. Reading and studying and

thinking lead to intellectual growth.

Drugs don't. Drugs stunt or slow mental growth. They waste a person's time. And as we all know, they can waste a person's life.

I applaud your efforts to prevent that from happening on your campuses. Only where minds are clear, uncluttered, and free of chemical interference can learning and teaching and "the life of the mind" thrive. That is what college is all about.

That is what your work makes possible.

I want to introduce today a United States Senator from the Hoosier State who, after taking office this January, made the war on drugs his priority.

The Senator from Indiana believes that the family is the "basic bulding block" of our society. He believes that no society can thrive and prosper with a self-destructive force chipping away at its foundation, the family.

While in the U.S. House of Representatives, he served on the Select Committee on Children, Youth and Families.

Soon after arriving in the Senate, he introduced his American Family Act, which includes 26 pieces of legislation designed to strengthen education, improve child care, and help disadvantaged children.

Today, he serves on the Senate Armed Services Committtee; and he is the ranking Republican (or ranking "minority member") of the Senate Labor and Human Resources Subcommittee on

Children, Family, Drugs and Alcohol.

Please join me in welcoming the junior Senator from Indiana, Senator Dan Coats.

November 16, 1989

Christopher T. Cross
Assistant Secretary of Educational Research and Improvement

The Mission of the Special Study Panel on Education Indicators as Viewed by the Office of Educational Research and Improvement

Ted Sanders has presented for you the Administration's view of the timeliness and importance of your work. I want to help begin your task by focusing on some of the substantive issues which I believe this panel will want to consider early on.

Perhaps the first issue, one you may address even today, is what analytical model or framework should organize a

system of education indicators. Basically I think there are three possibilities:

The first model is one based on the scientific approach. This approach begins from a synthesis of the available research, and then reports on the important inputs which research links to learning, or to high school completion, or to other positive results of education. One example of researchers' contribution to the development of indicators is their experience with modeling socioeconomic differences among students. Researchers remind us that we can not gauge the effectiveness or the quality of schools without estimates of differences in student populations.

The scientific approach to indicator development

summarizes key statistics related to educational inputs, selected demographic variables, and educational outputs of different kinds. This is currently the framework for the Condition of Education (the indicator report of NCES) and the annual indicator reports of the Council of Chief State School Officers as well as other indicator publications.

A second model for organizing educational indicators is one based on professional educators' or practitioners' views of the principal domains of the educational process. This approach reflects shared perceptions and contemporary thinking -- rather than research findings -- about what's important. An example of this type of indicator is teacher quality. The research on teacher quality (what qualities matter and estimates of

their impact) is inconclusive; nevertheless educators want information on changes in teachers' credentials or shifts in career patterns.

The categories of interest to educators include resources and commitment, school context and organization, indicators of curriculum and instruction, and measures of outcomes in achievement and school completion. The RAND sourcebook on indicators for monitoring mathematics and science education -- included in your packet of materials -- is an excellent example and resource for this approach to modeling the field of education indicators.

A third model might be termed an "atheoretical approach." It implies that there is an institutional structure

already in place and that some pieces of information are pragmatically important -- if schools are to work efficiently. The purpose of this approach is not to verify the model itself, but to uncover the "pressure points" where policymakers need accurate and timely information.

For example, education decision-makers are vitally interested in statistics on teacher/pupil ratio for reasons that sometimes have little to do with their actual impact on classroom effectiveness.

Each of these analytic models has its advantages and its disadvantages. Surely the "best" approach to developing a set of indicators is not one approach but some combination of these three. In other words, all indicator development

must first be informed by science, but it is important too to report on what policymakers want to know and educators feel are issues of the day. Your task is to figure out the proper balance among these three approaches. The need for striking this kind of balance I think is well illustrated by the history of the social indicators movement which you'll be discussing later this afternoon.

Another way to approach your task is to ask who your audience is. Are the indicator reports of the Department of Education read by the Press, by the public, by parents, by teachers, by principals, by state education policymakers, by the business community? Audience is an important consideration when deciding not only what to report, but how to report education indicators. Economic indicators have become so frequently and ubiquitously reported that

everyone has learned what they represent. But that wasn't always the case and there are lessons we can learn too from the successful development of economic indicators, also the topic of one of the papers on today's agenda.

Levels of aggregation are another an important dimension. Policymaking is increasingly focused on the state-level, though recent reform efforts stress a need for site-level management as a part of the accountability movement already underway in several states. In a decentralized system of education, it is essential that the interests of schools, school districts, states, and federal government are joined to construct information and indicator systems that service all levels of the educational system.

In general, indicator development is a combination of two

processes: First it is a technical process that tackles issues of educational measurement, data collection, and reporting. Second, it involves consensus-building around which indicators really matter. In the absence of clear and agreed-upon educational goals, the consensus-building can be the more difficult half of the task.

But as Ted has pointed out, the resolutions of the Jeffersonian Compact have already started some of that work. The President and the nation's Governors are now committed to announce early in 1990 a set of national educational goals. Over the next few months, the National Governors Association is likely to sponsor several hearings to learn what parents and educators and community leaders hold as their educational goals. I also want to draw your attention to the final section of the President

and the Governors' communique which reads: "When goals are set and strategies for achieving them are adopted, we must establish clear measures of performance and then issue annual Report Cards on the progress of students, schools, the states, and the Federal Government."

I believe the Jeffersonian Compact has two implications for your task: First, you should note that the seven goal areas mentioned in the communique were introduced as examples rather than as an exhaustive list. I hope you will consider either refining or adding to their goal areas. For example, issues related to postsecondary education were not included among their seven areas. Second, by lending your technical guidance to general problems with measuring and reporting educational progress, you may be better positioned than any other group to intelligently

inform the initial efforts to issue "annual Report Cards on the progress students, schools, the states, and the Federal Government."

Last, I leave you with an observation made at a recent Congressional hearing by Gordon Ambach, Executive Director of the Council of Chief State School Officers. The Wall Chart, Ambach pointed out, "was not created as a report card on national goals or objectives but rather as a display card of the only three 'outcomes' the Department could find available on a state-by-state basis... No one is satisfied that those [indicators] are a satisfactory measure of results of American education. They are used year after year solely because they are the only measures available."

We hope you'll guide us toward a better system, a system that will help states and districts as well as the Department of Education provide information that parents, principals, and policymakers need and can use.

Alternate Certification Meeting
December 5, 1989
Christopher T. Cross

Welcome. We are delighted to have you here.

I was asked to keep my opening remarks brief, and when I realized why, when I saw the line-up of speakers. We will be hearing today from an array of experts who have created and run--or studied and evaluated--various alternate certification programs.

Before introducing the first such individual, who is largely responsible for launching the first statewide alternate certification program in the Nation, let me just say a few words about why we are sponsoring this meeting today.

In simplest terms, President Bush, Secretary Cavazos, Under Secretary Sanders, myself, and many others believe that alternate certification could help plug several glaring gaps in the Nation's teacher-and-principal supply. While it is a relatively new policy, where it has been tried, the results have been encouraging.

First, it has proven effective as a means of recruiting minorities into teaching. While fewer blacks and Hispanics are entering colleges of education in this country, alternate certification has demonstrated the ability to attract a disproportionately high percentage of minority individuals into teaching. In New Jersey, for instance, 21 percent of alternate route candidates are minorities; that is double the percentage of minorities in the State's teaching force.

Second, alternate certification programs can attract teachers in critical-shortage subjects. While there is general disagreement today about whether the Nation will face a teacher shortage tomorrow, few dispute the documented fact that schools are having a hard time finding enough qualified individuals to teach mathematics and science (and certain other subjects). Two out of three secondary school principals say they have a tough time hiring individuals qualified to teach chemistry or physics (or computer science). In one year, for every new mathematics or science teacher who entered the classroom, 12 left.

There is no relief in sight. A recent Rand Corporation report predicts that American colleges of education will produce fewer than half of the science and mathematics teachers American schools will need in the foreseeable future.

Many of you know what happens when a qualified person cannot be found to teach physics or geometry. The principal has no choice

but to hire someone having little if any college coursework in the subject. This practice, known as "emergency certification," is not only permitted but is fairly common in many States, particularly for recruiting science and math teachers. The problem, of course, is that such "teachers" may know little more than students about the subject. (Perhaps "emergency certification" is one reason our students consistently come in last or near last on international tests in these two subjects.)

Alternate certification helped New Jersey eliminate "emergency certification." It could enable other States to do so as well.

Third, alternate certification gives schools and communities more choices, greater flexibility in building their most important resource. Teachers and principals.

As you know, States and school districts are beginning to shift more of the decisions about education out of central headquarters and into the schools themselves. "School-based decision-making" appears to be one of the fastest growing school restructuring efforts in the Nation.

But I ask you. What education decision is more important to any school or community than who will teach its children or lead its teachers? (Nothing in any classroom--no textbook, no instructional program, nor any other resource--influences student learning so much as classroom teachers. And no single individual in any school has the capacity to improve schoolwide performance than the principal.)

Schools and communities ought to have every option imaginable to attract the best possible candidates to teach and provide educational leadership.

Alternate certification provides that option. Alternate certification can supplement, not supplant, the traditional pipeline of educators.

Surveys indicate that education leaders would like to have this option. Eight out of 10 school principals and superintendents support the notion of alternate certification.

On the other side, surveys also suggest that a sizable pool of interested candidates may be available in many communities. A National Executive Service Corps survey found that 8 out of 10 of the military personnel responding indicated an interest in teaching as a new career. It found 7 out of 10 corporate scientists and engineers also potentially interested in teaching.

In summary, this is what we know. We know that America's schools need more of certain kinds of teachers. Minorities. Mathematics and science instructors. (And more outstanding

teachers in all disciplines.)

We are pretty sure that there is a significant pool of potentially interested candidates out there--in the military, in business and industry, in research labs, government offices, in college classrooms and private schools.

We know that many school leaders may be interested in such candidates.

The Bush Administration believes that alternate certification is an idea whose time has come. That is why President Bush proposed in April, as part of his Educational Excellence Act of 1989, the Alternative Teacher and Principal Certification program--a program that would help States open the doors of their schools and classrooms to talented individuals who lack an education degree but who may nevertheless be qualified to teach and provide leadership in public schools.

It is time to extend educational leadership and teaching opportunities to more Americans. It is time to provide schools with more real options regarding one of their most important decisions.

And it is time to find out more about alternate certification from people who have implemented it, operated it, and lived with it.

We came here today not just to "hail the promise" of alternate certification, but to hear about the obstacles and discover the pitfalls to successful implementation of such programs. OERI sponsored this meeting to help us identify the critical research questions that must be answered if alternate certification is to fulfill its promise as a policy tool for strengthening teaching and learning in schools and classrooms across America.

I am delighted that we have a line-up of people here today who can help identify such research questions.

And I am honored to introduce you to one of those individuals...one of the Nation's "leading lights" in education and (next to Governor Kean) the highest ranking educator in New Jersey.

The Garden State is "growing" some of the most innovative approaches to education policy anywhere. Its alternate teacher certification program (or what they call the "provisional teacher program") is a success story familiar to many of you.

We would do well to bear in mind, however, that alternate certification, important as it is, is only one piece of a comprehensive strategy to improve teaching quality in New Jersey.

Another important effort, for instance, is the Academy for the Advancement of Teaching and Management...which brings teams of teachers--with their principals--together to examine research and offer practical suggestions on how to use new theories to improve teaching and learning.

In the latest development, last week the commissioner announced that two key components of the alternate certification program are being extended to all first-year teachers. All first-year teachers will be hired on a "provisional" basis and will receive lots of assistance from a mentor and a district-level support team.

It is my honor and pleasure to introduce the man who announced this extension of a "lesson learned" from alternate certification to all new teachers...the person behind this and a host of other innovative reforms in one of the Nation's leading education-reform states: Commissioner of Education for the State of New Jersey, Dr. Saul Cooperman.

Since 1982, when he was named as commissioner, Dr. Cooperman has initiated a comprehensive program to raise education standards in New Jersey. He has implemented programs to revitalize teaching as a profession, to raise expectations for student performance, and to make educational leadership more effective. I should mention also that two years ago, Dr. Cooperman was elected to the governing board of the national Assessment of Educational Progress (what those of us in OERI refer to as "NAEP").

Please help me welcome the education commissioner of New Jersey, Dr. Saul Cooperman.

The First National Conference on Comprehensive School Health Education (FIE, in FIRST)

December 11, 1989

Christopher T. Cross

I am delighted to be here.

I want to take this opportunity to thank the FIRST staff (Richard, Allen, and others) for sponsoring this national conference on comprehensive school health education. I want to commend the FIRST office for overseeing this first major competition for comprehensive school health education programs--the first such competition not only in OERI but the first, I'm told, in the Department. (We're seeing a lot of "firsts" today.)

And I want to congratulate you. The competition was stiff; you were selected from among 80 proposals; the evaluation process was rigorous.

I want to talk briefly today about <u>why</u> this program is such an important one. But first, let me say a few words about the <u>purpose of this conference</u>.

The reason we invited you here today, in simplest terms, is that <u>we want you to succeed</u>. We want each of these 18 projects to reach its goals...to be as good a model for others as possible.

Your success is important to us in OERI and the Department of Education--and to the Nation as a whole--because health is, in a sense, the soil that sustains human growth. As Benjamin Disraeli (British statesman, author, prime minister 1870s) said, "The health of the people is

really the foundation upon which all their happiness and all their powers as a state depend."

Healthy young people are a necessary but insufficient condition for achieving several of the national goals tentatively proposed by President Bush and the governors in Charlottesville two months ago.

Take the suggested goal of making schools safe, disciplined, and drug-free. These 18 projects, if successful and well documented, cannot help but improve the orderliness and the overall "climate" of schools.

Another proposed goal has to do with reducing dropout rates and improving academic performance, particularly among at-risk youngsters. We all know that too many of our youngsters are graduating unable to read, write, and calculate adequately. We all know that too many American

students get lost in the system and drop out of school.

Many of these 18 projects target youngsters most at risk of getting lost and dropping out. Can your projects help increase the "holding power" of schools serving these disadvantaged youngsters? And can these 18 nationally visible projects produce the salutary side-effect of contributing to much-needed improvements in student learning, particularly among minority and at-risk youngsters?

One of the Federal government's overriding responsibilities in education is helping those most in need. The Department plows billions of dollars per year--$4.7 billion from Chapter 1 alone--into improving the basic academic competencies of disadvantaged children and adults. All of us here today recognize that academic performance is inextricably linked to physical and mental

health. Thus it is very much in our interest, at the Federal level, to see these school health projects succeed.

Because of the importance and potential impact of Chapter 1 (it is the Department's largest elementary/secondary program)--and because today more than ever, Chapter 1 policies encourage greater family and community involvement--there is a need and an opportunity for Chapter 1 to serve as a vehicle for improving the "total education" of young people. I would like to recommend that <u>each</u> of you seek ways to use this vehicle, to work with state and local Chapter 1 people in your area.

Those are a few <u>obvious</u> reasons that we in the Department want to see your efforts produce results. Let me turn now to three additional and less obvious--but nevertheless important--reasons that I <u>personally</u> want to see these 18 projects produced documented,demonstrable results.

This program embodies three principles that are (and will continue to be) cornerstones of my tenure at OERI. A diversity of approaches. Teamwork. And accountability for results.

First, in health education or any other kind of education, there is no "one right way." Diversity is valuable in a program such as this, for a variety of approaches, if well monitored and accurately evaluated, can lead to overall better approaches. A variety of approaches gives state and local leaders more options, more models to draw on and adapt to the particular needs in their communities.

Diversity certainly characterizes this program. You represent an impressive array of sponsoring groups. These 18 projects are being launched from a number of "bases"--by state agencies, professional associations, regional

laboratories (that OERI supports), a medical institution, school districts, partnerships between univerisities and schools, a consortium of 10 school districts and a university, and other organizations. And collectively, the projects address all school levels, kindergarten through 12th grade. (Some projects involve--or even target--parents as well.)

Diversity is perhaps most apparent in your various approaches or strategies for improving comprehensive school health education. Some projects will establish health education programs. Several will build upon proven health education curricula such as "Growing Healthy." There will be efforts to identify good programs and to develop systems for evaluating existing programs so as to permit replication elsewhere. Several projects will establish health education resource centers; at least one will develop a state-level office for coordinating, monitoring, and publicizing school health education. One will test a "peer counseling" component;

another will provide a "snapshot" of comprehensive school health education across one the Nation's largest states.

<u>The second important principle</u> encapsulated in this program has to do with a strategy upon which the success of all 18 projects hinges. It is a strategy that I believe American education must make far more use of in the years ahead. Teamwork. All the people, organizations, and institutions affected by a particuar program or educational initiative (in this case, health education) must work together as a team.

These 18 projects are by definition "comprehensive" and, as such, depend not only on your efforts but on the efforts of <u>others</u> beyond your immediate staff.

At a time of increased willingness among states and communities to allow individual schools to make their own

decisions (in exchange for better student performance), your cooperative and collaborative efforts could furnish a real and living "model of teamwork" in the many schools and school systems where such models do not exist (even in the abstract). The notion of "integrating" instruction, meshing health education with principles of biology, health teachers collaborating with English teachers, multi-disciplinary team approaches, statewide consortia--these are but glimpses of some of your many proposed strategies that could help advance the restructuring of roles and responsibilities of people in American schools.

<u>The third theme or principle</u> we hope to promote in this program is a focus on performance, on validation of results. Accountability is one of the education themes of the Bush Administration. It is a theme I intend to promote vigorously.

I am delighted to see, for example, that one project will evaluate a statewide comprehensive school health education program to determine the extent to which students are actually acquiring the skills, attitudes, and behaviors that the program was designed to teach. Such a model will be useful to other states.

While such system-wide assessment may not be the expressed purpose of every project, documentation and evaluation are integral to each of your 18 projects. This program was created to help identify comprehensive school health education approaches that work...approaches that can be replicated and adapted elsewhere. Accurate, reliable documentation and evaluation make that possible.

So let me urge today that as <u>your</u> project gets underway, <u>document</u> what you do, and document it <u>meticulously</u>. A fundamental Federal role in education is

the identifying of what works. We cannot fulfill that role without accurate, consistent, reliable documentation. Other health education projects cannot build upon your insights, expertise, and "lessons learned" without such documentation.

In summary, I am excited about this program not only because it could improve the health of America's young but also because the program proceeds on three key principles. It encourages diverse approaches to an educational challenge, team efforts to meet that challenge, and a focus on results.

As I mentioned earlier, we in OERI are committed to helping you make your projects a success. One reason we invited you here is to familiarize and "link" you with the various resources that may be of use to you...resources such as the Key Contact Directory (that was developed by Richard LaPointe's staff).

I also alluded to the fact that teamwork is one of my priorities for OERI. As I told OERI staff when I took office two months ago, each of our 9 regional labs, our 20-some research centers, our 16 ERIC clearinghouses, all OERI staff, every single project and program we support must become part of the Federal research-and-development team. And the goal or mission of this team, which you are now a part of (if you weren't before), is to make a significant and measurable impact on school performance and student learning. The value of our efforts must, in the end, be judged by their impact on student outcomes.

Many members of the OERI team are doing work that is directly or indirectly related to yours. The ERIC clearinghouse on teacher education, for instance, houses information and answers questions about health programs. Another example is the OERI-supported research center on Effective Schooling for Disadvantaged Students at Johns

Hopkins University; the center is this year beginning a project to determine the effectiveness of specific delivery models of family and mental health services (in meeting the needs of schools, families, and children).

Other examples include our drug-free schools recognition program (which has recognized 77 exemplary elementary and secondary school drug prevention and intervention programs); our network of colleges and universities committed to eliminating drug and alcohol abuse on campus; and the National Diffusion Network (or NDN), which collects and disseminates outstanding instructional models. I understand that NDN staff have developed a catalogue of health-related programs and that they will be talking to you today; they're looking for outstanding health-education programs to add to that catalogue.

These examples represent just a few of the R&D team members from OERI. Richard and his staff will be trying to enlist, as members of this Comprehensive School Health Education "team," all health-related programs in the Department.

In addition to strengthening collaboration within the Department, Secretary Cavazos and I are seeking to increase cooperative efforts with other Federal agencies. Tomorrow's keynote speaker, for instance, is Michael McGinnis, the Deputy Assistant Secretary for Health Disease Prevention and Health Promotion in HHS, an office that has earned a reputation as a national leader in promoting health and health education among youngsters. We are exploring ways to work more closely with Mike and his staff.

Also here today and tomorrow are representatives from more than a dozen Federal agencies and national education

organizations concerned with health education. In addition to the Department of Education programs I've already mentioned, we have here representatives of Chapter 1; the Office of Planning, Budget, and Evaluation; and Secretary Cavazos' office.

All of these offices and programs are part of our team. And they are among the resources available to you. I hope you will draw on them and use them.

But perhaps your greatest resource is the people in the other 17 comprehensive school health ed projects. Thus, the somewhat unusual approach of this conference--having each of you make general-session presentations describing your goals and strategies for achieving them--should prove useful to all of us.

Our power to improve school health education grows stronger with the knowledge of what others in the field have done, are doing, and hope to do.

Your efforts here today could help to improve substantially the quality of comprehensive school health education in this Nation's schools.

That is your challenge. I wish you luck, and I look forward to working with you. Thank you.